**> PTO/SB/13 (11-96)
Approved for use through 6/30/99. OMB 0651-0033
Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

REQUEST FOR FILING A PATENT APPLICATION UNDER 37 CFR 1.60

DOCKET NUMBER	ANTICIPATED CLASSIFICATION OF THIS APPLICATION		PRIOR APPLICATION EXAMINER	ART UNIT
	CLASS	SUBCLASS		
RLIS	600	300.000	G. Evanisko	3737

Address to:
Assistant Commissioner for Patents
Washington, D.C. 20231

This is a request for filing a ☐ continuation ☒ divisional application under 37 CFR 1.60, of pending prior Application Number 08 / 676,458, filed on July 8, 1996 entitled Medical Records, Documentation, Tracking and Order Entry System

1. Enclosed is a copy of the latest inventor-signed prior application, including a copy of the oath or declaration showing the original signature or an indication it was signed. I hereby verify that the papers are a true copy of the latest signed prior application number 08 / 676,458, and further that all statements made herein of my own knowledge are true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

CLAIMS	(1) FOR	(2) NUMBER FILED	(3) NUMBER EXTRA	(4) RATE	(5) CALCULATIONS
	TOTAL CLAIMS (37 CFR 1.16(c))	30 - 20 =	10	x $ 22 =	$ 220.00
	INDEPENDENT CLAIMS (37 CFR 1.16(b))	4 - 3 =	1	x $ 82 =	82.00
	MULTIPLE DEPENDENT CLAIMS (if applicable) (37 CFR 1.16(d))			+ $ =	
			BASIC FEE (37 CFR 1.16(a))		+ 790.00
			Total of above Calculations =		1,092.00
	Reduction by 50% for filing by small entity (Note 37 CFR 1.9, 1.27, 1.28).				546.00
			TOTAL =		$546.00

2. ☒ A verified statement to establish small entity status under 37 CFR 1.9 and 1.27
   ☐ is enclosed.
   ☒ was filed in prior application number 08 / 676,458 and such status is still proper and desired (37 CFR 1.28(a)).
3. ☐ The Commissioner is hereby authorized to charge any fees which may be required under 37 CFR 1.16 and 1.17, or credit any overpayment to Deposit Account No. _____. A duplicate copy of this sheet is enclosed.
4. ☒ A check in the amount of $ 546.00 is enclosed.
5. ☒ Cancel in this application original claims 1-6 of the prior application before calculating the filing fee. (At least one original independent claim must be retained for filing purposes.)
6. ☒ The inventor(s) of the invention being claimed in this application is (are): James E. Ross, Jr. and William J. Lynch
7. ☐ This application is being filed by less than all the inventors named in the prior application. In accordance with 37 CFR 1.60(b), the Commissioner is requested to delete the name(s) of the following person or persons who are not inventors of the invention being claimed in this application:
8. ☒ Amend the specification by inserting before the first line the sentence: "This application is a ☐ continuation ☒ division of application number 08 / 676,458, filed July 8, 1996, (status, abandoned, pending, etc.)."

**> PTO/SB/13 (11-96)
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(REQUEST FOR FILING A PATENT APPLICATION UNDER 37 CFR 1.60, PAGE 2)

9. [X] New formal drawings are enclosed.

10. [ ] Priority of foreign application number _____, filed on _____ in _____ is claimed under 35 U.S.C. 119(a) - (d).
    [ ] The certified copy has been filed in prior application number ___ / _____, filed _____.

11. [X] A preliminary amendment is enclosed.

12. [X] The prior application is assigned of record to RLIS, Inc.

13. [ ] Also enclosed:

14. [X] The power of attorney in the prior application is to: James C. Wray; Meera P. Narasimhan

    a. [X] The power of attorney appears in the original papers in the prior application.

    b. [ ] Since the power does not appear in the original papers, a copy of the power in the prior application is enclosed.

    c. [X] Address all future correspondence to: (May only be completed by applicant, or attorney or agent of record.)

[ ] Customer Number _____ → *Place Customer Number Bar Code Label here*
OR *Type Customer Number here*

[X] Firm or Individual Name James C. Wray

Address	1493 Chain Bridge Road, Suite 300
Address	
City	McLean State VA ZIP 22101
Country	US
Telephone	(703) 442-4800 Fax (703) 448-7397

June 19, 1998 — Date

Narasimha — Signature

Meera P. Narasimhan — Typed or printed name

[ ] Inventor(s)
[ ] Assignee of complete interest. Certification under 37 CFR 3.73(b) is enclosed.
[X] Attorney or agent of record
[ ] Filed under 37 CFR 1.34(a)
Registration number if acting under 37 CFR 1.34(a). _____

PTO/SB/17 (2/98)
Approved for use through 9/30/2000. OMB 0651-0032
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

FEE TRANSMITTAL

Patent fees are subject to annual revision on October 1. These are the fees effective October 1, 1997. Small Entity payments must be supported by a small entity statement, otherwise large entity fees must be paid. See Forms PTO/SB/09-12. See 37 C.F.R. §§ 1.27 and 1.28.

TOTAL AMOUNT OF PAYMENT ($) 546.00

Complete if Known	
Application Number	
Filing Date	June 19, 1998
First Named Inventor	Ross
Examiner Name	G. Evanisko
Group / Art Unit	3737
Attorney Docket No.	RLIS

JC542 U.S. PTO 09/100100 06/19/98

86/19/90

METHOD OF PAYMENT (check one)

1. ☐ The Commissioner is hereby authorized to charge indicated fees and credit any over payments to:

Deposit Account Number
Deposit Account Name

☐ Charge Any Additional Fee Required Under 37 C.F.R. §§ 1.16 and 1.17

☐ Charge the Issue Fee Set in 37 C.F.R. § 1.18 at the Mailing of the Notice of Allowance

2. ☒ **Payment Enclosed:**
☒ Check ☐ Money Order ☐ Other

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
101	790	201	395	Utility filing fee	395
106	330	206	165	Design filing fee	
107	540	207	270	Plant filing fee	
108	790	208	395	Reissue filing fee	
114	150	214	75	Provisional filing fee	

SUBTOTAL (1) ($) 395.00

2. EXTRA CLAIM FEES

		Extra Claims		Fee from below	Fee Paid
Total Claims	30	-20** = 10	X	11	= 110
Independent Claims	4	- 3** = 1	X	41	= 41
Multiple Dependent					=

**or number previously paid, if greater; For Reissues, see below

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
103	22	203	11	Claims in excess of 20
102	82	202	41	Independent claims in excess of 3
104	270	204	135	Multiple dependent claim, if not paid
109	82	209	41	** Reissue independent claims over original patent
110	22	210	11	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($) 151.00

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
105	130	205	65	Surcharge - late filing fee or oath	
127	50	227	25	Surcharge - late provisional filing fee or cover sheet.	
139	130	139	130	Non-English specification	
147	2,520	147	2,520	For filing a request for reexamination	
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for reply within first month	
116	400	216	200	Extension for reply within second month	
117	950	217	475	Extension for reply within third month	
118	1,510	218	755	Extension for reply within fourth month	
128	2,060	228	1,030	Extension for reply within fifth month	
119	310	219	155	Notice of Appeal	
120	310	220	155	Filing a brief in support of an appeal	
121	270	221	135	Request for oral hearing	
138	1,510	138	1,510	Petition to institute a public use proceeding	
140	110	240	55	Petition to revive - unavoidable	
141	1,320	241	660	Petition to revive - unintentional	
142	1,320	242	660	Utility issue fee (or reissue)	
143	450	243	225	Design issue fee	
144	670	244	335	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	50	123	50	Petitions related to provisional applications	
126	240	126	240	Submission of Information Disclosure Stmt	
581	40	581	40	Recording each patent assignment per property (times number of properties)	
146	790	246	395	Filing a submission after final rejection (37 CFR 1.129(a))	
149	790	249	395	For each additional invention to be examined (37 CFR 1.129(b))	

Other fee (specify) _____

Other fee (specify) _____

* Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($)

SUBMITTED BY

				Complete (if applicable)	
Typed or Printed Name	Meera P. Narasimhan			Reg. Number	40,252
Signature	Narasimhan	Date	6-19-98	Deposit Account User ID	

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

ROSS et al.

Serial No.: To be assigned

Filed: Concurrently herewith

For: MEDICAL RECORDS, DOCUMENTATION, TRACKING AND ORDER ENTRY SYSTEM

PRELIMINARY AMENDMENT

To the Commissioner of Patents and Trademarks

Sir:

Before considering this application, kindly amend the application as follows:

In the Specification:

Page 1, after the title and before line 4, insert:

--This application is a division of application Serial No. 08/676,458 filed July 8, 1996.

In the Claims:

Kindly cancel claims 1-6 without prejudice.

REMARKS

Consideration and allowance of the claims are respectfully requested.

Applicant respectfully requests that this preliminary amendment be entered into this case.

Respectfully,

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June 19, 1998

APPLICATION

FOR

UNITED STATES LETTERS PATENT

FOR

MEDICAL RECORDS, DOCUMENTATION, TRACKING AND ORDER ENTRY SYSTEM

BY

JAMES E. ROSS, JR.
and
WILLIAM J. LYNCH

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Medical Records, Documentation, Tracking and Order Entry System

BACKGROUND OF THE INVENTION

Need exists for immediate triage, reports and medical records which may be generated and supplied to physicians and nurses and which may be translated into patient reports, instructions and prescriptions without delaying or burdening hospital personnel.

SUMMARY OF THE INVENTION

The new system provides automatic incorporation of dictated text; medical records summary generation in medical English text; parsing dictation to data; prephrased text; automatic generation of medical record as a consequence of data entry; automatic notation of allergies, significant medical conditions and pregnancy; pregnancy linking, automatically; security card close on pull; multi-look grease board; outstanding orders listing for all patients in the department; department layout; room selection excludes occupied rooms; nurses notes to text; nurses notes from physician orders to nurses; lab request screen shows all previously ordered labs; therapeutics; ACLS recording; lacerations; doctor specific prescriptions and medication orders; review of systems; coding level alerts; differential diagnosis, filter to sex and age; diagnosis, fractures to text; doctor interval reexamination; patient instructions predicated on what was done; patient instruction video on demand; patient informed consent video on demand; video teleconferencing; electronic signatures; automatic backup and incremental backup with system

on-line; critical management reports; and automatic research data extraction.

The new computer system is accurate, comprehensive and fast. The present invention provides accuracy in documentation and speaks the language of medicine. It provides speed in documentation and captures time for every care giver, not just physicians. The new system provides access to the documentation, eliminating constant hunting for the chart.

The invention generates a comprehensive document; a full and complete medical record. The new system provides triage, exit instructions, patient tracking and every phase of the encounter. Security, privacy and integrity of data are maintained. The data is up to date and pertinent. Every facet of medical care is documented. Pharmaceutical, procedural, diagnostic and patient instruction data are current and state-of-the-art. The system is built from the ground up to meet the unique needs of an acute care environment.

Pertinent and comprehensive patient care data are gathered. The patient's old records are organized for review on subsequent visits. Multiple visit patient data is instantly available. The new system allows physicians to confirm that the right questions were asked, the appropriate exam elements were covered, the likely diagnoses were considered, the appropriate treatment was rendered and consultation was made in a timely fashion. The invention reduces medicolegal liability and assures quality of care. Data is organized in a format that meets HCFA criteria for

proper billing for care rendered, meets E&M coding criteria and facilitates CPT coding.

Data is accessible and maneuverable. Rapidly retrievable data generates useful management reports. Most information gathered is stored as data, not as text. The invention provides instant access to massive quantities of patient data. Storage techniques are innovative, allowing simultaneous access and input to the same chart. Interface is provided with outside data sources: registration, lab, X-ray, transcription, ancillary services, central supply, pharmacy and the clinical data depository.

The invention enables research and remote analysis by real-time secured remote access to the database by primary and consulting physicians, as well as other hospital facilities. The acquired clinical data is uploaded to central data warehouses for purposes of statistical analysis and research. With strict maintenance of patient-identifying data, privacy and confidentiality are assured.

The new computer system is extremely intuitive and easy to use. It limits disruption due to new personnel coming into the department. Clinical staff like to use it, which increases user satisfaction. Speeding of patient throughput increases patient satisfaction. Meaningful reports are provided to increase productivity in the acute care setting. Individualized user preferences are accommodated with customized text entries.

Doctors and nurses need not have world class typing skills to use the system effectively.

Nursing and physician documentation are combined in the final medical record. The system is transparent to the user, not distracting.

The importance of care giver decision making is emphasized, allowing personnel to use common sense on how and when to record information. The new system allows data entry independence. A user is not required to fill in every blank before proceeding to the next page. A consistent screen "look and feel" reduces user fatigue, and facilitates speed and accuracy.

The overall cost of providing care is reduced to remain competitive in the rapidly evolving world of managed care.

Automatic incorporation of dictated text into the computer generated medical record summary: the summary is formatted so as to make it easy for the caregivers (doctors, nurses, clerks, ancillary services personnel, orderlies, paramedical personnel, and other qualified personnel) to read and understand what is going on with the patient. The medical record also has a specific organization necessary for billing for the care which is rendered. In order to produce a hybrid record in which much of the information is entered by clicking on buttons or check boxes and combine this data with information which is dictated, it is important that the dictation go to the appropriate places in the summary. For instance, a doctor may enter much of the information in the Review of Systems (ROS) by checking boxes.

But he may wish to dictate a small unique bit of information which is not present in the ROS screens. This dictated text is automatically inserted into the record at the appropriate location.

Medical records summary generation in medical English text in a standardized format from the data in the database: the nurses and doctors put patient information into the chart using touch screen, mouse, keyboard, or by dictating to a transcriptionist. This is done on entry screens which have standardized look and feel so as to maintain familiarity with the layout and organization of a very large body of information. This information load cannot be reduced if a comprehensive record is to be produced. When the summary is called up on screen or as a printout, all of the patient data is converted into medical English text and reads as if it had been dictated by a nurse or doctor. This includes the parts which were actually dictated. The summary is generated in under three seconds from thousands of clinical facts which were gathered during the process of patient care. The summary can be called up at any time and will show everything that the medical personnel have input about the patient up to that point.

Dictation: the portions of the medical record which are dictated initially are received by the communications server(s), analyzed for patient and content, attached to the proper patient and visit and broken into its component medical parts. When a medical summary is produced, dictated text is attached to the

proper part of the medical record. This allows summaries to include all data including information which was initially entered by dictation.

Prephrased text: these computer system data entry screens allow medical personnel to select prestored personalized text phrases to be included in specific medical record components. This makes including frequently used personalized text very fast. Once added to the record, the text is fully editable.

Automatic generation of the medical record as consequence of data entry: in every aspect of the computer system, information that is input in one place is included in all places that are relevant. Many caregivers provide input of information into a patient's medical record. The input is added at different times from different locations. Some of the data comes from other departments. All of the acquired data is collated into a properly formatted medical record automatically. This may be output to a screen as a summary or printed. If the patient dictation returns after the patient is released from the department, the printed record is generated automatically.

Automatic notation of allergies, significant medical conditions and pregnancy: on all medication entry screens and on screens where a nurse executes an order for medication, pertinent medical conditions are noted to prevent medical complications.

Security card close on pull: the computer system has security measures which limits access to the system. Patients, family members, or others are prevented from looking into medical

records or entering information. The caregiver approaches a station terminal and inserts a security card. The local station terminal becomes active. The user is automatically identified and areas in which the user has "rights" are made available. All entries are attributed to the correct user. When entries are complete, the card is pulled from the reader. The computer system stores all entered data and the terminal is returned to a protected state.

Patient tracking: Various displays provide the state of the hospital department indicating patient location, doctor assignment, patient status, and order status.

Nurses notes to text: 95% of all the nurses notes are generated by simple selections on screens in the nurses notes section. Little typing is necessary for producing comprehensive nursing notes. Physician orders are automatically queued for nurses, and can be "picked off" to record the activity in the medical record and indicate completion.

Labs, radiology, and tests can be ordered and results automatically returned to the system.

Therapeutics: a comprehensive selection of therapeutics can be entered as performed or generate orders for others to complete.

ACLS recording: ACLS procedures and observations can be quickly entered as they are performed. At any time, a quick summary of procedures performed with elapsed times can be displayed.

Lacerations: documentation of laceration repair allows for procedures performed on each tissue layers on multiple lacerations.

Doctor specific prescriptions and medication orders in the department: each doctor can have a physician-specific list of medications which are frequently prescribed. Both in-department drug orders and prescriptions can be generated using a physician-specific drug list, alphabetical master list, or category-based list. Generated prescriptions include drug-specific patient instructions in English or Spanish.

Review of systems: the system easily tracks review of system responses, automatically grouping answers into appropriate body system and separating pertinent negatives from positive responses. Body system headlines aid in proper coding for care rendered.

Coding level alerts: when patient complaints are entered, the system indicates to users medical information that should be collected to receive proper coding for billing. As the appropriate information is collected, other indicators so indicate. This assures that all pertinent information is entered into the medical record. It aids in increasing the quality of care rendered and in the coding level which can be attained for the care rendered.

Differential diagnosis: the system automatically generates a comprehensive sex and age specific differential diagnosis based

on the patient's complaint(s). A preselected multi-level sublist of the most likely diagnoses is included.

Diagnosis: a diagnosis can be selected from the differential diagnosis, or created using body part graphics to indicate injuries.

Doctor Interval Reexamination: each time a physician visits a patient, the system can document the date/time of the visit.

Patient instructions predicated on what was done: the computer system produces discharge instructions to the patients telling them about their illness or injury, about what was done for them, as well as what they should do to care for themselves at home. Warnings are given to patients to return to the medical facility or seek further care when necessary. The instructions also list referrals. In most circumstances these instructions are entered automatically based on the patient's complaints, diagnoses, and treatment rendered.

These and further and other objects and features of the invention are apparent in the disclosure, which includes the above and ongoing written specification, with the claims and the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 schematically shows the system network

Figures 2-7 schematically show functional linking.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

A medical records, documentation, tracking and order entry system 1 is shown in Figure 1. Fault tolerant file servers 2 and support and backup servers 3 use standard disk drives or fully redundant arrays of drives on each server. A communications server(s) 4, linked to each of the file servers, receives incoming transcription 5. A network has a hub 7 connected to the file servers 2 and 3 by data lines 8. Peripheral terminals 9 are connected to the network in a star configuration with the hub. The peripheral terminals 9 have individual central processing units 10 with hard disks. Touch screen 11, monitors 12, keyboards 13 and mouses 14 are connected to the CPU's. Software resides in the communication server(s) 4, in the dual file servers 2 and 3 and in the peripheral CPU's 10. Patient data is received in the peripheral CPU's via the touch screens, mouses, and keyboards and for storing the patient data in the peripheral CPU's and file servers. A distributed dictation system has inputs adjacent to the CPU's. A transcription system 5 is connected to the multiple inputs and is connected to the communication server(s) 4. Transcribed dictation is received in the communications server(s) 4. The transcribed dictations are placed in an electronic storage bin in the communications server(s) for transferring the dictation transcriptions to the file servers, and storing the dictation transcriptions in the file servers 2 and 3 as text associated with patient data for particular patients. A printer 15, connected to the network,

generates reports on individual patients and management reports of system operations of statistical information, doctor related activities, nursing related activities and patient statistics.

A triage printer 16 in the department prints information about patients' complaints, locations and physician and nurse assignments, and prints lists of patients in the order of immediacy. Other printers 17 may be located in other locations within the department or in other departments. A fax 19 is connected to the network 6 to send printed documents over telephone lines to remote locations.

Uninterruptable power supplies 20 supply power to all the local systems. Other departments 21 are connected to the master server 2 to receive data from other departments and to send data to the other departments.

A telephone system 22 provides communications with remote offices such as doctor's offices 23, and a transcription service which serves transcribers 5. Modems 24 are connected to the communications server(s) 4 for communicating with doctors' offices, transcribers and support from the system suppliers. An ISDN data network 25 is connected in parallel with the modems 24 to connect with the supplier's support 26, the doctor's offices 23 and transcribers 5.

The patient record documentation method provides tracking and order entry. File servers provide data and software from the file servers through a network hub and network to multiple CPU's. The patient data is transferred from the CPU's to the file

servers. Portions of the record that are unique to particular patients are dictated. The dictation is transmitted over voice lines to a transcription center where the dictation is transcribed. The transcribed dictation is transmitted to the communication server(s), which feeds the dictation transcription to the file servers as text components. The text on particular patients is stored in the file server with the tabled data. Word and sentence generation and coordination software is stored in the peripheral CPU's. Monitors display text sentences generated by the generation software as summaries, together with the text from the dictation transcriptions. The text summaries are sent from the peripheral CPU's to a printer via the local network for generation of printed patient textual reports with sentences generated in medical English text.

Nurses' notes are entered as data on touch screens, mouses and keyboards. The data of nurse's notes is transferred from the peripheral CPU's to the file servers, which stores the nurse's notes information as data. The nurse's notes data is transmitted to the peripheral CPU's, which recompile the data into nurse's notes text, display the nurse's notes as text on the peripheral CPU monitor screens and print the nurse's notes text on the printer.

Prephrased text examples are stored in the file servers. Individual physicians and nurses preliminarily select prephrased text examples as personalized text for compiling with data to produce medical English textual summaries and reports.

Nurse's orders are generated by entering physician orders to nurses at peripheral CPU's. The physician orders are transmitted as physician orders data to the file servers. Physician orders data are stored with the patient tabled data in the file servers. Physician orders data are provided from the file servers to the peripheral CPU's, which display the physician orders data as textual nurse's orders on the CPU's, print nurse's orders, display all outstanding nurse's orders on the CPU's on request and display all nurse's orders specific to the patient. Entering executions of the nurse's orders on the patient display automatically changes the executed nurse's textual notes for display in summaries.

Patient record documentation tracking and order entry starts with logging on to a peripheral CPU, displaying the user's name and the active patient list "grease board," and showing room location, patient's name and physician, nursing orders, priority and elapsed time of stay, and status of assignment of nurse and physician, ordering of X-rays, labs and tests, nurse's orders, records, dictation and vital signs.

Status is shown in small letters for ordering of X-rays, labs, tests, nurses' orders and dictation, and large letters to indicate completion of X-rays, labs, tests, nurse's orders and dictation transcripts.

Active patient list information is displayed in a department layout.

A screen shows a list of patients waiting to be seen by a physician, in the order of priority. Another display shows patient lists by patient complaints. A further display lists patient lists by those whose charts have not been dictated by the physician.

In Figures 2-7 of the drawings, showing the functional linking of the program, the double-line boxes with italic text show actions by users. The heavy line boxes with bold text show program modules. The single line boxes with Roman text show results or output.

Arrows show direct routing.

Moving from left to right across the page, the functions are sub functions or accessed functions from those toward the left. In other words, moving from left to right drills down into deeper functions of the program.

The reference numbers are used to provide additional text detail about the box being referenced. TeleMed denotes the invention.

Broken lines allow the break-up of sections and movement to the left so as not to run out of room moving across the page.

All modules, where appropriate, record data to the medical record with time/date stamps and who performed the function.

101. **Security Validation Module** – Personnel using the system must clearly demonstrate their identity using a variety of methods depending on the system configuration. Single and multiple passwords, smart card technology, magnetic card or other

personal ID technologies. The user's identity establishes the individual "rights" to use various functions. For example, physicians may be the only users given rights to generate prescriptions, nurses could have rights to implement various medical procedures, ward clerks might need rights to order labs, but records clerks may be limited to changing demographic information. When smart cards are used, the system is available only while a proper, authorized card is inserted. Upon withdrawal, the system completes any processes and reverts to a non responding mode.

102. **Tracking Module** – Medical personnel can quickly see the status of both individual patients and the entire department. TeleMed initially displays an active patient list showing all patients within the department. This display also provides a variety of additional pertinent information such as location, priority, elapsed time since entering the department, order status, vitals status and assigned physician.

This information can be presented in a variety of formats, sometimes with additional information, to help the department personnel quickly obtain the patient tracking information they need. Department layout displays a map of the department showing occupancy (and availability) and physician assignments. Waiting patients shows patients in the order they should be taken. Patient complaints presents patients with their associated complaints. A patient can be selected from any of these displays to enter his/her individual medical record.

Other displays show outstanding orders and the latest vitals on each patient.

This module also controls creation of new visits and, if the patient has never previously visited the hospital, creation of new patient records. New visits can be created without knowing the patient identification. Identification can later be changed here when such information is available.

Historical medical records can be located using a variety of patient information such as name, social security number or previous hospital numbers. Using a name will display all patients with similar names with additional identifying characteristics such as birth date. The specific patient can be selected and previous visits will be displayed with complaints. Selection of a visit provides access to a medical record summary for that visit.

103. **Directory Module** – Provides a directory of physicians and other services. Can be filtered to physicians with specific specialties and/or managed care affiliations. Physician preferences to be notified if a patient enters the hospital and referral preferences are included.

104. **Utilities Module** – This sections handles reports, system management, and data maintenance. Management includes editing users, doctor drug prescription preferences, doctor drug order preferences, prephrased text, and other system functions. Reports can be created for any time period. They include department status, department statistics, transcript status,

length of stays, repeat visit statistics, mortality, outcomes analysis, etc.

An extensive selection of physician and management reports are available. Since TeleMed stores medical facts as discrete facts rather than text, extensive analysis of an extremely wide variety of medical relationships can easily be accomplished.

A variety of maintenance utility functions are included.

105. **Language Generation Module** —A key function within the TeleMed program is the language generator. TeleMed stores most medical information as individual specific medical facts rather than as text. When displaying these facts in an on-screen medical summary or on printed medical records, these facts are quickly converted to complex sentence structure similar to physician's dictated medical text.

The language generator builds sentence structure, often containing multiple related facts taken from widely separated points within the program. The program uses a pronoun sequencing technique which produces medical language more like the way medical personnel actually record medical records.

Medical facts are analyzed for responses and type in relation to the patient's sex and age, then converted to initial sentence structure. Where appropriate, the language generator intelligently rearranges the order in which facts were entered to provide the information in a more usable and medically appropriate format. The structure is analyzed and modified if compound sentences can linguistically improve structure. Text

such as dictation is analyzed for type and integrated into the previous structure. All text is then analyzed as to the need for headlines and subheads. Needed heads are inserted. The use of bold increased-size headings for major sections and bold or italic subheads allow for quick viewing and easy location of specific facts.

106. **To Screen or Printer Module** – This module formats text to appropriate output. Manages screen display and movement or manages printer page output.

Output from the language generator module is analyzed and reformatted for the requested output mode (screen or print).

Medical records are printed in a typeset format whereby all medical facts are grouped under the proper medical headings.

The module can automatically fax a copy of the patient's record to the patient's private physician or generate an extra copy of medical records for patients with specific diagnosis or other characteristics for audit.

107. **Master Patient Module** – Controls routing to all patient-specific screens. Controls specific patient location and priority (passed to Patient Tracking Module). Movement of a patient is noted by a simple selection of available locations (occupied beds are excluded from the selection). Manages billing coding level alerts used to warn medical personnel that the medical record is incomplete to support the level of billing possible based on accumulated facts about the visit. Indicators show what additional information should be collected. Manages

master alerting system to warn medical personnel of significant medical conditions.

This module also performs ongoing statistical trend analysis of patient data to alert medical personnel of dangerous long-term trends in the patient's medical condition.

Input and output of liquids and solids by the patient, bed generated patient weight and direct incorporation of monitoring device output are automatically tracked.

Physician electronic signatures can be added to the medical record.

108. **Triage Module** – This section collects specifics about the medical encounter that pertain to fulfilling legal hospital requirements for triage. Many responses are later intelligently used by the system. Facts such as pregnancy status later cause the system to automatically alert medical personnel as procedures are about to be performed, and warn personnel when orders are given (such as specifying abdominal protection when x-rays are ordered). Upon completion of triage, a triage summary produced by the language generator can be printed.

109. **Complaints Module** – TeleMed is a complaint driven system. This module manages complaints, differential diagnosis and diagnosis. As complaints are entered, the system begins to automatically modify later functions so department personnel deal with a dramatically reduced array of selections. For example, a comprehensive differential diagnosis is filtered to only those appropriate to the complaint, sex and age, and a recommended

multilevel subset (none, light, medium or heavy variations are set by physician preferences) is used as a starting point for physicians to place in the medical record. They can then easily add to or delete from this starting point. Patient instructions relating to a complaint/diagnosis are automatically queued.

When a complaint is selected, an extensive knowledgebase is used by the program to establish parameters the program will follow throughout the rest of the visit. These parameters guide the program in selection of screens (such as to address the appropriate sex), generation of text, billing code levels, order restrictions or enhancements, etc. As the encounter progresses, the parameters are modified by the program to fit new facts collected.

The system can store photos of injuries or conditions taken with a digital camera directly into the patient's medical record.

The final diagnosis(es) can be easily selected from (but is not limited to) the differential diagnosis. Trauma diagnosis(es) can be selected from graphic presentations of the appropriate body parts. For example, a particular fractured bone and the fracture location, characteristics, and type can be indicated on a graphical display of the body part. TeleMed converts the fracture facts into proper medical language describing the injury.

110. **Patient History Module** –Patient histories and current conditions are collected using a series of screens providing a comprehensive selection of medical facts on allergies, past

medical history, family history, social history and a comprehensive review of systems which can be easily selected to indicate positive responses and, where appropriate, pertinent negative responses.

111. **Nurse Notes Module** – This series of screens allows nurses to easily select ordered procedures which have been performed, indicate other activities they have performed, record vitals, note observations or patient responses. Nurses can also pre-queue patient instructions associated with their activities. Orders made by physicians are queued so nurses can "pick off" an order to fully document the completion of the order. Electronic signatures can be added to a nurse's portion of the medical record.

112. **Prephrased Text Module** – Medical person specific or system wide blocks of text can be personalized. When selected, text blocks are automatically copied to the appropriate medical component of the medical record. They can then be easily modified in the transcript module, if necessary.

113. **Transcript Module** – Dictated text can be automatically integrated into the appropriate medical component of the record. Physicians can dictate parts of the medical record to a dictation company or in-house dictation department. The department can send the dictation back to TeleMed by modem or other link and TeleMed will automatically connect the dictation to the proper patient, separate the paragraphs and link them to the appropriate part of the patient's medical record. Once received, appropriate

medical personnel can fully edit dictation text to fix errors or enhance the text with additional information.

Medical personnel can type text into the record if they choose, or use personalized prephrased text (text blocks previously entered by the physician) to enter preferred phraseology into the medical record.

114. **Review of Systems Module** – Review of systems is collected using a series of screens providing a comprehensive selection of medical facts on body systems. Extensive body subsystems are included. Responses can be easily selected to indicate positive responses, and where appropriate pertinent negative responses.

The module manages billing coding level alerts for review of system body systems used to warn medical personnel that this portion of the medical record is incomplete to support the level of billing possible based on accumulated facts about the visit. Indicators show what additional information should be collected. Coding alerts passed to master patient module for overall management.

The module also notifies the alerting system to warn medical personnel of significant medical conditions.

115. **Drug Allergies Module** – Drug allergies are tracked. The module notifies the alerting system to warn medical personnel of such allergies and where appropriate, drug interactions.

116. **Lab Module** – This section contains a comprehensive selection of lab tests and procedures to be ordered and tracked.

A user can automatically generate orders within the appropriate hospital department and provide the ward clerk with a record of the order. Labels for laboratory test source materials are automatically printed. Lab results can be automatically deposited back into the TeleMed system. The return of results are automatically flagged on the active patient list screen to alert medical personnel.

Lab results which impact medical personnel actions, such as a result of pregnant, cause TeleMed to automatically begin alerting personnel to such conditions and future orders intelligently react to the condition. For example, an X-ray order would automatically indicate that the abdomen should be protected.

Results not received in a department specified time generate an alert.

All previous lab orders for a specific visit can be displayed to help prevent unnecessary duplication.

117. **Radiology and Test Module** – These section contains a comprehensive selection of radiology and test procedures to be ordered and tracked. A user can automatically generate orders within the appropriate hospital department and provide the ward clerk with a record of the order. Results can be automatically deposited back into the TeleMed system. The return of results is automatically flagged on the active patient list screen to alert medical personnel.

Results which impact medical personnel actions cause TeleMed to automatically begin alerting personnel to such conditions and future orders intelligently react to the condition.

Results not received in a department specified time generate an alert.

All previous radiology and test orders for a specific visit can be displayed to help prevent unnecessary duplication.

118. **Diagnostics and Therapeutics Module** – A comprehensive entry system for ordering or performing medical procedures. Procedures can be recorded upon completion or orders can be generated. If orders are made, a paper record of the order is created and the order is placed in queue for medical personnel to complete. The queuing system automates recording the completion of the order by personnel performing the task.

When procedures are performed, where appropriate, patient instructions are automatically queued.

119. **ACLS Module** – ACLS actions are recorded by selecting the procedure or observation and clicking record. Accumulated ACLS actions can be immediately displayed at any time with elapsed times since each action.

120. **Laceration Module** – TeleMed handles any number of lacerations per encounter and tracks activity performed overall, on each tissue layer, and on each laceration while pre-queuing appropriate patient instructions.

121. **Inventory Control Module** – This module controls the inventory and access for pharmaceutical and other materials used

in the department. An automatic reordering system linked to other hospital systems is included.

122. **Video System Module** – The video instruction system is managed by this module. On demand, digital video instructions and education programs can be played for the patient through the terminal or an optional alternate screen. Video programming is also included to assist in obtaining informed consent for performing medical procedures.

123. **Drug Module** – Both a customizable physician-specific drug list and a comprehensive master drug list are available. The physician-specific list allows physicians to prescribe or order medications in their preferred manner, even allowing for the multiple entry of the same drug with different dosing. The master list can be accessed by entering the first few letters of the drug name or selection can be made by drug classification. Medications from the master list provide a default normal SIG for the drug, which can easily be modified. Drug interaction alerts are included.

Prescriptions include complete printed instructions in English or Spanish on use of the drug.

124. **Consultation Module** – Consultants can be selected from a directory. The directory displays all consultants or consultants filtered for medical specialty and/or managed care affiliations. A record of the consultation, along with timing and documentation of the discussion are recorded. If the

consultant does not return a call within a department specified time period, an alert is generated.

125. **Referrals Module** – Referrals can be selected from the directory. The directory displays all consultants or consultants filtered for medical specialty and/or managed care affiliations. Referrals will print on the patient instructions along with specialty, phone numbers, addresses, and appointment times (if any).

126. **Dr. Interval Module** – The physician can record each time he/she checks the patient.

127. **Medical Summary Module** – This module specifies the range of facts, method of display, routing of output and other factors needed by the language generator.

128. **Nurse Notes Summary Module** – This module specifies the range of facts associated with nurse activity, method of display, routing of output and other factors needed by the language generator.

129. **EKG Results Module** –This module specifies the range of facts associated with EKG results, sets display to the screen, and establishes other factors needed by the language generator.

130. **Patient Instructions Module** – Integrated patient instructions are automatically queued based on the patient's condition and what was done. Instructions can be added or deleted from the queue before printing.

Printed instructions include a list of prescriptions, referrals and other significant information about the visit.

131. **Work/School Excuse Module** – Outputs patient work or school excuse noting services performed, when to return, limitations on activity, and referrals.

132. **Demographics Module** –This module tracks a comprehensive array of patient demographics including contact information, religion, insurance, employer, guarantor, etc. With insurance companies and government agencies that are equipped, automatic electronic insurance verification is made.

133. **Department Clerk Module** – Manages status of orders to other departments, and time delay alerts for non completion of orders.

134. **Teleconferencing Module** – From any point within the system (or from properly authorized remote locations) to any other point in the system, medical personnel can link terminals and have visual conferences. Medical personnel can link directly to a patient's room terminal and answer queries. Physicians can link from their office and have a conference with department personnel or the patient. Physicians in their office can remotely examine the electronic medical record and place orders or enter information into the medical record.

135. **Research Module** – This module can automatically strip identifying demographics from medical records and produce various analysis for generation of research data. Research protocols and outcome analysis can also be managed.

136. **Transcript Text Analysis Module** – TeleMed's communications server receives the text from the dictation

source. This module analyzes the text for tags which identify the patient, dictating physician, time and date dictated and other data. Paragraphs are analyzed for tags indicating the medical record component associated with each paragraph. The dictation is then broken into paragraph based components, linked to the proper patient, date and timed stamped, and stored.

The module specifies the range of facts, method of display, routing of output and other factors needed by the language generator. The language generator is queued to automatically print medical records upon receipt of a transcript for any outstanding dictation if the patient is no longer in the department.

137. **Automatic Backup Module** – Provides automatic on-line back-up data. At department specified frequency, the module also backs-up all data changed since the last full back-up (interim backups).

138. **Scheduling Module** – This module manages scheduling of personnel for department coverages.

139. **Interface Module** – Interface, and data mapping to exchange data with other systems is managed by this module.

TeleMed is a comprehensive system for the automatic generation of a medical English sentence structured medical record as a consequence of individual factual data entry. The look and feel of the program is designed to make the program easy to use by medical personnel having little or no computer

experience, and to dramatically shorten the learning curve to become competent in using the system.

TeleMed stations with touch screens are placed at each bedside, nurse and physician stations, triage, clerk desks and other appropriate locations.

Use of the system is accomplished by using either the touch screen, keyboard or mouse and selecting a screen button or box to move through the program or enter medical facts. Values can be entered by keyboard. The system intelligently selects appropriate variations of screens to fit the patient (such as appropriate sex).

Personnel using the system must clearly demonstrate their identity using a variety of methods depending on the system configuration. Single and multiple passwords, smart card, magnetic card or other personal ID technologies. The user's identity establishes the individual "rights" to use various functions. For example, physicians may be the only users given rights to generate prescriptions, nurses could have rights to implement various medical procedures, ward clerks might need rights to order labs, but records clerks may be limited to changing demographic information. If smart cards are used, the system is available only while a proper, authorized card is inserted. Upon withdrawal, the system completes any processes and reverts to a non responding mode

Remote access to the system is controlled by "firewall" software routines which require varying security levels up to a

forced return link initiated by the system to authorized remote computers or systems.

Medical personnel need to quickly see the status of both individual patients and the entire department. TeleMed initially displays an active patient list showing all patients within the department. This display also provides a variety of additional pertinent information such as location, priority, elapsed time since entering the department, order status, vitals status and assigned physician.

This information can be presented in a variety of formats, sometimes with additional information, to help the medical personnel quickly obtain the patient tracking information they need. Department layout displays a map of the department showing occupancy (and availability) and physician assignments. Waiting patients shows patients in the order they should be taken. Patient complaints presents patients with their associated complaints. A patient can be selected from any of these displays to enter his/her individual medical record.

Other displays show outstanding orders and the latest vitals on each patient.

Historical medical records can be located using a variety of patient information such as name, social security number or previous hospital numbers. Using a name will display all patients with similar names with additional identifying characteristics such as birth date. The specific patient can be selected and previous visits will be displayed with complaints.

Selection of a visit provides access to a medical record summary for that visit.

Movement of a patient is noted by a simple selection of available locations (occupied beds are excluded from the selection).

TeleMed tracks a comprehensive array of patient demographics including contact information, religion, insurance, employer, guarantor, etc.

The triage portion of the program allows personnel to begin entering patient facts before knowing the patient identification. This section collects specifics about the medical encounter that are later intelligently used by the system. Facts such as pregnancy status later cause the system to automatically alert medical personnel as procedures are about to be performed, and warn personnel when orders are given (such as specifying abdominal protection when x-rays are ordered). Upon completion of triage, a triage summary produced by the language generator can be printed.

TeleMed is a complaint driven system. As complaints are entered, the system begins to automatically modify later functions so personnel deal with a dramatically reduced array of selections. For example, a comprehensive differential diagnosis is filtered to only those appropriate to the patient's complaint, sex and age, and a recommended multilevel subset (none, light, medium or heavy) is used as a starting point for physicians to place in the medical record. They can then easily add to or

delete from this starting point. Patient instructions relating to a complaint/diagnosis are automatically queued.

When a complaint is selected, an extensive knowledgebase is used by the program to establish parameters the program will follow throughout the rest of the visit. These parameters guide the program in selection of screens (such as to address the appropriate sex), generation of text, billing code levels, order restrictions or enhancements, etc. As the encounter progresses, the parameters are modified by the program to fit new facts collected.

The final diagnosis(es) can be easily selected from (but is not limited to) the differential diagnosis. Trauma diagnosis(es) can be selected from graphic presentations of the appropriate body parts. For example, a particular fractured bone and the fracture location, characteristics, and type can be indicated on a graphical display of the body part. TeleMed converts the fracture facts into proper medical English describing the injury.

A series of screens provides a comprehensive selection of medical facts on allergies, past medical history, family history, social history and a comprehensive review of systems which can be easily selected to indicate positive responses, and where appropriate pertinent negative responses.

The nurse notes series of screens allows nurses to easily select ordered procedures which have been performed, indicate other activities they have performed, record vitals, note observations or patient responses. Nurses can also pre-queue

patient instructions associated with their activities. Orders made by physicians are queued so nurses can "pick off" the order to fully document the completion of the order.

The ordering section contains a comprehensive selection of labs, radiology procedures and other tests to be ordered and tracked. A user can automatically generate orders within the appropriate hospital department and provide the ward clerk with a record of the order. Results from these departments can be automatically deposited back into the TeleMed system. The return of results is automatically flagged on the active patient list screen to alert medical personnel.

Lab results which impact medical personnel actions, such as a result of pregnant, cause TeleMed to automatically begin alerting personnel to such conditions and future orders intelligently react to the condition. For example, an X-ray order would automatically indicate that the abdomen should be protected.

All previous lab, radiology or test orders for a specific visit are displayed to help prevent unnecessary duplication.

The procedures section is a comprehensive entry system for ordering or performing medical procedures. Procedures can be recorded upon completion or orders can be generated. If orders are made, a paper record of the order is created and the order is placed in queue for medical personnel to complete. The queuing system automates recording the completion of the order by personnel performing the task.

When procedures are performed, where appropriate, patient instructions are automatically queued.

Advanced cardiac life support (ACLS) actions are recorded by selecting the procedure and clicking on record. Accumulated ACLS actions can be immediately displayed at any time with elapsed times since each action.

TeleMed handles any number of lacerations per encounter and tracks activity performed overall, on each tissue layer, and on each laceration while pre-queuing appropriate patient instructions.

Both a customizable physician-specific drug list and comprehensive master drug list are available. The physician-specific list allows physicians to prescribe or order medications in their preferred manner, even allowing for the multiple entry of the same drug with different dosing. The master list can be accessed by entering the first few letters of the drug name or by drug classification. Medications from the master list provide a default normal SIG for the drug, which can easily be modified.

Generated prescriptions include complete printed instructions in English or Spanish on use of the drug.

Consultants can be selected from a directory. The directory displays all consultants or consultants filtered for medical specialty and/or managed care affiliations. A record of the consultation, along with timing and documentation of the discussion are recorded.

Referrals can be selected from the same directory. Referrals will print on the patient instructions along with specialty, phone numbers, addresses, and appointment times (if any).

TeleMed automatically integrates dictated text into the appropriate part of the medical record. Physicians can dictate parts of the medical record to a dictation company or in-house dictation department. The department can send the dictation back to TeleMed by modem or other link and TeleMed will automatically connect the dictation to the proper patient, separate the paragraphs and link them to the appropriate component of the patient's medical record.

TeleMed's communications server(s) receives the text from the dictation source. The text is analyzed to identify the patient, dictating physician, time and date dictated and other data. Paragraphs are analyzed for tags indicating the medical record component associated with each paragraph. The dictation is then broken into paragraph based components, linked to the proper patient, date and timed stamped, and stored.

Once received, appropriate medical personnel can fully edit dictation text to fix errors or enhance the text with additional information.

Physicians can type text into the record if they choose, or use personalized prephrased text (text blocks previously entered by the physician) to enter preferred phraseology into the medical record.

The physician can record each time he/she checks on the patient.

Integrated patient instructions are automatically queued based on the patient's condition and what was done. Instructions can be added or deleted from the queue before printing.

Printed instructions included a list of prescriptions, referrals and other significant information about the visit.

A key function within the TeleMed program is the language generator. TeleMed stores most medical information as individual specific medical facts rather than as text. When displaying these facts in an on-screen medical summary or printed medical record, these facts are quickly converted to complex sentence structure similar to a physician's dictated text.

The TeleMed language generator builds sentence structure, often containing multiple related facts taken from widely separated points within the program. The program uses a pronoun sequencing technique which produces medical sentences sounding more like the way medical people actually record medical records.

Medical facts are analyzed for responses and type, reordered and converted to initial sentence structure. Text such as dictation is analyzed for type and integrated into the previous structure. The text is then analyzed for the need for headlines and subheads. Needed heads are inserted. The entire block is analyzed and reformatted to combine and rebreak text lines at appropriate points. The block is reanalyzed and reformatted for positioning on the appropriate output (screen or print).

Medical records are printed in a typeset format whereby all medical facts are grouped under the proper medical headings. Where appropriate, TeleMed intelligently rearranges the order in which facts are entered to provide the information in an extremely usable format. The use of bold increased-size headings for major sections and bold or italic subheads allow for quick viewing and easy location of specific facts.

The medical record is automatically printed upon receipt of any outstanding dictation if the patient is no longer in the department.

TeleMed can automatically fax a copy of the patient's record to the patient's private physician.

The program can also automatically generate an extra copy of medical records for patients with specific diagnosis or other characteristics for audit.

Coding level alerts are used to warn medical personnel that the medical record in incomplete to support the level of billing possible based on accumulated facts about the visit. Indicators show what additional information should be collected.

An extensive selection of physician and management reports are available. Since TeleMed stores medical facts as discrete facts rather than text, extensive analysis of an extremely wide variety of medical relationships can easily be accomplished.

A variety of maintenance utility functions are included.

A set of wound treatment screens provides a method for documenting multiple layers of repair using different suture

techniques on different tissue layers with different suture material.

Each time a doctor visits a patient can be recorded, along with date/time data, by TeleMed.

A graphical representation of all bones in the body can be displayed so specific bones, location on the bone, type of fracture, and other fracture related facts can be indicated. The peripheral CPU stores the fact data and also generates a medical English description of the fracture for review. The CPU sends the data and text to the file servers for storage as diagnoses. Patient instructions associated with fracture repair procedures are automatically queued by TeleMed.

The review of systems uses a series of screens on the peripheral CPU's whereby entries are made by touching or clicking a mouse on the check boxes, thereby recording data about certain specific organ systems in question. That data is then transferred as data to the file servers and is stored as data.

The coding level alerts are a method by which the software on the peripheral CPU generates check marks next to the screen data entry buttons, which notify the treating nurse to go into those screens and enter that specific data. The check marks are generated by the entry of specific complaints made by a patient. Specific check marks are converted into diamonds when sufficient medical data has been collected to meet coding level requirements for that medical component or function in association with accumulated single or multiple complaint requirements.

Pregnancy linking is a methodology by which, if the patient is stated to be or determined to be pregnant, or possibly pregnant, TeleMed automatically alerts medical personnel to take precautions when procedures, such as X-rays are to be performed. TeleMed also automatically calculates the estimated date of completion and gestational age.

Upon completion of the medical encounter, or at any time during the encounter, TeleMed can generate a complete medical English summary of all accumulated information about the encounter. If dictation has been made, TeleMed will automatically process the transcription text into the patients medical record for that specific visit and generate a printed summary.

An example of a complete generated patient report, lab and radiology requests, patient instructions and prescription follows.

Example:

Southwest General Hospital

San Antonio, Texas

Emergency Department Report

Patient Name		Sex	DOB	Age
Garbo, Greta G		Female	09/21/58	37 year old
Arrival Date/Time	**Admission #**	**Patient #**	**Last Tetanus**	**Status**
03/28/96 11:18	6478636	788231	5-10 Years	Urgent

General Information

The informant is the patient and EMS.

Chief Complaint

The patient's first complaint is falling.
The patient's second complaint is injury, left wrist.
The patient's third complaint is hematuria.
The patient's fourth complaint is abrasion, right knee.

History of Present Illness

Onset of the problem occurred at approximately 10:53 on 03/28/96.
This patient was walking across the street when she fell and hurt her left wrist and right knee. She also bumped her lower abdomen on the curb. She subsequently noted blood in the toilet when she urinated and is not on her period. She missed the last one and thinks she's probably pregnant again because she's urinating frequently and has had some morning sickness. She denies any head or neck trauma and does not feel faint. No cold sweats or SOB.

Allergies

Demerol, sulfa.

Medications

Current medications: None.

Past Medical History

Patient's physician: None. Her last tetanus shot was between 5-10 years ago. Tetanus is not up to date. Past medical history includes: anemia, back injury and pneumonia.

Past Surgical History

Past surgical history includes: appendectomy and C-section.

Review of Systems

She is complaining of coughing. The skin has no rash. There has been no bruising. Mrs. Garbo complained of: no musculoskeletal pain and no joint or muscle stiffness. HEAD: no history of headaches, no previous head trauma and no history of syncope. EYES: no vision problems, no photophobia and no previous discharge from the eye. EARS: no deafness or hearing loss and no previous ear pain. NOSE: (+) rhinitis and no sinusitis. MOUTH: no mouth ulcers. THROAT: no sore throat and no previous dysphagia. NECK: no prior stiffness and no neck pain. PULMONARY: no pleuritic pain, no shortness of breath, no dyspnea while sleeping, (+) for cough, no sputum production and no hemoptysis. CARDIAC: no chest pain, no palpitations and no orthopnea. GASTROINTESTINAL: (+) for nausea. The patient denies vomiting, abdominal pain, diarrhea, constipation, hematemesis, melena and bloody stools. GENITOURINARY: The patient is pregnant. recent onset of polyuria, recent onset of nocturia, mild dysuria, urgency, increased frequency of urination, hematuria with no clots and vaginal discharge. The patient denies incontinence and dyspareunia. Venereal: She has not been treated for venereal disease. Onset of menses was at age 11. Periods occur regularly approximately every 30 days and usually last for 4 days with medium flow. The date of the last normal period was 01/12/96. The next to last period occurred four weeks prior to the last period. Complications of pregnancy included: fluid retention and

a C-section.

Social History

The patient is a cigarette smoker using 1/2 PPD. Alcohol use includes wine weekly. She denies use of drugs. Mrs. Garbo is married. The patient lives with a spouse and children.

Family History

There is a family history of blood relatives with cancer, diabetes, heart disease, high blood pressure and stroke.

Physical Exam

Initial vital signs: T 97.8 (O), P 95, R 24, BP 112/68, O2 Sat 97%, Wt 54 kg (118 lbs). She is a 37 year old caucasian pregnant female. The calculated EDC is 10/18/96 based on the patient's stated LMP. The calculated gestation is 11 weeks. Mrs. Garbo has a height of 5' 3" and weighs 54 kg. (118 lbs.) (weighed)

MUSCULOSKELETAL: The left wrist is somewhat swollen and is very tender to palpation and she has pain on range of motion. There is no gross angular deformity. The right knee has superficial abrasions and a little bit of dirt ground in. There is slight pain in the knee on ROM but no instability or crepitus or restriction of ROM.

ABDOMEN: is soft with slight tenderness over the symphasis but there is no swelling or bladder distention. Flanks are non-tender.
GENERAL APPEARANCE: Well hydrated, well nourished, cooperative patient. No acute distress.
MENTAL STATUS: Oriented X 3, normal affect, behavior, insight, judgement, mood, perception, and thought process.
HEAD: No sinus tenderness. No facial tenderness or swelling. No tenderness of the scalp and no scalp hematomas. No palpable nodes. No apparent head trauma and no skull deformity or depression.
MOUTH: Mucous membranes: moist. Tongue: normal. Gums: normal. No patches or ulcers. Uvula midline.
DENTAL: no local swelling, redness or tenderness. Normal dentition. Good hygiene.
NECK: supple, no tenderness, no spasm, range of motion within normal limits. No lymphadenopathy. No rigidity. Negative Kernig's and Brudzinski's signs. No JVD. No carotid bruits. Equal bilateral carotid pulses. No palpable enlargement of the thyroid and no thyroid masses or tenderness. Normal glottic motion on swallowing. No trachael deviation.
CHEST: there are no retractions. There is no tenderness on palpation of the chest wall. Chest is symmetrical. There is no crepitus.
HEART: Rate: normal. Rhythm: regular. Heart Sounds: normal. No systolic or diastolic murmurs. No pericardial rub. No gallops. There is no ectopy. No displacement of the PMI.
LUNGS: breath sounds equal bilaterally. No dullness to percussion. No rhonchi, rubs, wheezes, or rales on auscultation. Not hyperresonant. No E to A changes.
BACK: no tenderness, without spasm. There is no observed scoliosis of the spine. There is no point tenderness. Bilateral straight leg raising negative. There is no CVA tenderness or pain on palpation.
GENITOURINARY: Vulva: no ulcers, no vescicles, and no atrophy. No lice found. Vagina: normal introitus, no discharge or blood. Cervix: closed, (+) Chadwick's sign, nontender,

non-specific discharge, no cystic changes present. Uterus: slightly enlarged, nontender. Right Side Adnexae: without mass, nontender. Left Side Adnexae: full left ovary, slightly tender to palpation. No fullness in the cul-de-sac.
RECTAL: nonbloody stool. No hemorrhoids are noted. No inguinal hernia is present. No impaction.
NEUROLOGICAL: alert, oriented to time, place and person. Cranial Nerves: II-XII normal. Motor Function: normal tone and strength. Sensory Function: normal to pain and soft touch. Cerebellar Function: normal giat and rapid alternating movements. Reflexes: normal in intensity and symmetric.

Labs

03/28/96 11:31 labs requested by William L. Phillips, RN
Labs requested include: CBC, serum pregnancy (HCG), urinalysis, urine C&S and ER panel.
Lab results of 11:42:19:

Hematology

CBC WBC	4.9 K/UL (4.8-10.8)
CBC RBC	3.9 M/UL (4.2-5.8)
CBC Hgb	11.1 G/DL (12-16)
CBC Hct	32.9 % (38-48)
CBC MCV	79 FL (81-99)
CBC MCH	26 PG (27-31)
CBC MCHC	31 G/DL (33-37)
CBC Plt Count	228 K/UL (140-400)
Differential Segs	62 % (36-63)
Differential Bands	2 % (0-9)
Differential Lymphs	32 % (20-45)
Differential Monos	3 % (3-11)
Differential Eosin	1 % (0-6)
Morphology Micro	Positive
Morphology Hypochromasia	Positive
Morphology Oval	Positive

Urinalysis

Color	Red (Normal is Amber)
Appearance	Hazy (Normal is Clear)
Specific Gravity	1.024 (1.00-1.035)
pH	7.5 (4.6-8.0)
Protein	1+ (Negative)
Glucose	Negative (Normal)
Ketones	1+ (Negative)
Bilirubin	Negative (Normal)
Occult Blood	2+ (Negative)
Leuko/Esterase	1+ (Negative)
Nitrite	Negative
Urobilinogen	Negative (Normal)
Protein Confirmation by Sulfosalicilic Acid	1+ (Negative)

Patient Name		Sex	DOB	Age
Garbo, Greta G		**Female**	**09/21/58**	**37 year old**
Arrival Date/Time	**Admission #**	**Patient #**	**Last Tetanus**	**Status**
03/28/96 11:18	**6478636**	**788231**	**5-10 Years**	**Urgent**

Lab results of 11:44:41:

Chemistry

NA	139 Meq/L (136-149)
K	3.2 Meq/L (3.5-5.0)
CL	102 Meq/L (99-110)
CO2	26 Meq/L (24-31)
BUN	12 Mg/L (10-26)
Creatinine	0.8 Mg/L (0.6-1.5)
Glucose	118 Mg/L (70-110)
Alk Phos	103 MU/ML (Adult 30-100, Child 3-4 X Adult
SGOT	28 IU/L (0-40)
SGPT	31 IU/L (0-40)
LDH	153 IU/L (90-180)
T Bili	1.0 Mg/DL (0.2-1.5)
CA	10.1 Mg/DL (8.5-10.5)
CA++	4.3 Mg/DL (4.0-4.8)
Mg	2.1 Mg/DL (1.8-2.6)
Protein	6.8 Mg/DL (6-8)
Chol	126 Mg/DL (50-199)
Amylase	26 Mg/DL (25-115)

Special Chemistry

Serum Pregnancy	Positive
Serum Lipase	19 U/L (7-60)

X-Rays

03/28/96 11:32 Radiology requested by William L. Phillips, RN
X-ray requests include: left wrist and right knee.

03/28/96 12:10 Radiology requested by James Ross, Jr., MD
Ultrasound request: pelvis.

Left wrist: non-displaced impacted distal radius fracture. No ulna styloid fracture. Normal scaphoid and other carpals without fracture or subluxation. Right knee: no fractures or subluxation, no joint effusion, no calcified Baker's cyst, no degenerative changes or joint narrowing.
Pelvic Ultrasound: the ultrasound confirms a 10 week, 3 day, viable intrauterine pregnancy. There is a corpus luteum cyst on the left. There is no free fluid in the cul-de-sac. No appendix is visualized.

Procedures & Therapeutics

03/28/96 11:36
The wound was treated with Neosporin and Adaptic and plain gauze dressing. For splinting a volar forearm splint was applied.

03/28/96 12:36
Administered Ampicillin S odium 1 GM, Ampicillin Sodium For Inj 1 GM: 1 gm IV now.

03/28/96 12:40
Administered Diphteria and Tetanus Toxoids, Tetanus-Diphtheria Toxoids (Td) Inj 5-1.5 LFU: 0.5 cc IM Administered now.

03/28/96 13:17
Orders were given to release the patient.

03/28/96 13:22

Emergency Department Course

Differential Diagnosis

The differential diagnosis for the third complaint, hematuria, includes: uncertain etiology; acute cystitis; ureteral calculus; neoplasm; coagulopathy; acute appendicitis; acute diverticulitis; acute pyelonephritis; renal cyst; renal neoplasm; and glomerulonephritis.

Consultations

Frank Garcia specializing in Orthopedics was consulted on 03/28/96 at 13:16. The case was discussed at length. Consultant wishes to see the patient.

Bebe T Newbirth specializing in OB-GYN was consulted on 03/28/96 at 13:35. The case was discussed, consultant concurs with the decision to discharge patient. Consultant wishes to see the patient in her office tomorrow.

Diagnosis

1: fall.
2: impacted fracture of the left distal radius.
3: acute cystitis with hematuria.
4: abrasion, right knee.

Referrals

The patient was referred to:
Bebe T Newbirth, OB-GYN
Frank Garcia, Orthopedics

Prescriptions

Prescriptions given to the patient include:
TYLENOL #3 Tab 300-30MG, quantity 12, 1-2 tablets every 4 to 6 hours as needed, for 3 days.
MACROBID CAP100MG, quantity 14, 1 cap po q 12°, for 7 days.

Work/School Limitations/Excuse

A work excuse was provided to the patient. The excuse itemized services performed to include: initial treatment, radiology, lab work, physical exam, splint application. The patient may return to modified work on 04/02/96. She should not do any prolonged standing or walking. Mrs. Garbo should participate in right handed work only. Mrs. Garbo should not work near moving machinery. The patient should limit lifting to no more than 10 lbs.

Southwest General Hospital

San Antonio, Texas

Emergency Department Report

Patient Name		Sex	DOB	Age
Garbo, Greta G		**Female**	**09/21/58**	**37 year old**
Arrival Date/Time	Admission #	Patient #	Last Tetanus	Status
03/28/96 11:18	**6478636**	**788231**	**5-10 Years**	**Urgent**

Release from Emergency Department

She was released in good condition. Mrs. Garbo was released from the hospital on 03/28/96 at 13:18.

James Ross, Jr., MD

Southwest General Hospital

San Antonio, Texas

Emergency Department Report

Garbo, Greta G		Female	09/21/58	37 year old
Arrival Date/Time 03/28/96 11:18	Admission # 6478636	Patient # 788231	Last Tetanus 5-10 Years	Status Urgent

Nursing

Vitals

Date	Time	Pulse	Resp	BP	Temp	O2Sat	BGlu	FHrt	Recorded By
03/28/96	11:27	95	24	112/68	97.8 (O)	97%			William L. Phillips, RN
03/28/96	11:33	89	24	110/65	98.4 (O)				Jimmie McBride, RN

Orthostatic Vitals

Date	Time	P BP Rec	P BP Sit	P BP St	Recorded By
03/28/96	11:33	87 110/64	85 109/71	96 114/78	Jimmie McBride, RN

Nurse Assessment

The patient is assessed in triage as urgent.
Assessment recorded by William L. Phillips, RN
Treatment prior to arrival included sling, wound dressing.

Patient states that she was crossing the street and tripped on the curb. She fell onto her outstretched left hand and injured the left wrist and abraded her right knee. However she went home and on going to the bathroom she noted bloody urine in the toilet. She is not on her period. She missed her last period and wonders if she might be pregnant. The patient is awake, alert, attentive, moving all extremities well. The patient indicates a normal appetite. Skin W/D, pink nail beds, less than 2 second capillary refill. No obvious deformity. No respiratory distress. No neurovascular deficit to the injured area. No nausea, vomiting or diarrhea.

Nurse Notes

03/28/96 11:33 Nurse note recorded by Jimmie McBride, RN

She is oriented to time, place and person. Speech is normal. The left arm has normal strength. The right arm has normal strength. The left leg has normal strength. The right leg has normal strength. The left arm, right arm, left leg and right leg have normal pinprick sensation. Mrs. Garbo has a tachycardia. Breathing is normal. Breath sounds are clear. The skin is moist. The skin feels cool. The skin color is pale. Capillary return is normal. The pupils are equal. Both pupils are normally reactive. Both left and right radial pulses are normal. Both left and right tibial pulses are normal. The abdomen is tender in the left lower quadrant and right lower quadrant. The abdomen is distended. Bowel sounds are normal.

03/28/96 11:39 Nurse note recorded by Allison Reed, RN
The patient has been moved to x-ray.

03/28/96 11:45 Nurse note recorded by Jimmie McBride, RN

Physician orders completed include: Apply a volar forearm splint. Apply Neosporin ointment to the wound. Dress the wound using Adaptic and plain gauze dressing. She complains of increasing left wrist pain. Mrs. Garbo feels weak.

03/28/96 12:25 Nurse note recorded by Jimmie McBride, RN
The patient has been moved to ultrasound.

Southwest General Hospital

San Antonio, Texas

Emergency Department Report

Patient Name		Sex	DOB	Age
Garbo, Greta G		**Female**	**09/21/58**	**37 year old**
Arrival Date/Time	Admission #	Patient #	Last Tetanus	Status
03/28/96 11:18	**6478636**	**788231**	**5-10 Years**	**Urgent**

03/28/96 12:51 Nurse note recorded by Jimmie McBride, RN
She has returned to the emergency department.

03/28/96 12:59 Nurse note recorded by Jimmie McBride, RN

Physician orders completed include: Diphteria and Tetanus Toxoids, Tetanus-Diphtheria Toxoids (Td) Inj 5-1.5 LFU: 0.5 cc IM now.

03/28/96 13:18 Nurse note recorded by Jimmie McBride, RN

Physician orders completed include: Discharge the patient.
Mrs. Garbo was ambulatory upon leaving the Emergency Department. The patient was escorted from the Emergency Department by family. She appears to have complete or near complete relief of symptoms. Mrs. Garbo is alert and oriented. There are no other complications. Instructions were given to the appropriate person. The responsible party voiced understanding of the instructions. The patient was provided with a copy of the lab report and prescriptions.

_____
William L. Phillips, RN

_____
Jimmie McBride, RN

_____
Allison Reed, RN

Southwest General Hospital

San Antonio, Texas
Emergency Department

03/28/96
12:11

Requested Labs

Admission # **6478636** Patient # **788231** Room/Bed **Unknown**

Patient **Garbo, Greta G** **37 Year Old**

Doctor **James Ross, Jr., MD** Order entered by **James Ross, Jr., MD**

1	CBC
2	Serum Pregnancy (HCG)
3	Urinalysis
4	Urine C&S
5	ER Panel

Lab Copy

Southwest General Hospital

San Antonio, Texas

Emergency Department

03/28/96

12:12

Requested Radiology Procedures

Admission # **6478636** Patient # **788231** Room/Bed **Unknown**

Patient **Garbo, Greta G** **37 Year Old Pregnant Female**

Doctor **James Ross, Jr., MD** Order entered by **James Ross, Jr., MD**

SHIELD ABDOMEN
Knee with Sunright Right
Wrist Left
Pelvic Ultrasound

Radiology Copy

Southwest General Hospital

San Antonio, Texas

Emergency Department Report

Patient Name		Sex	DOB	Age
Garbo, Greta G		**Female**	**09/21/58**	**37 year old**
Arrival Date/Time	**Admission #**	**Patient #**	**Last Tetanus**	**Status**
03/28/96 11:18	**6478636**	**788231**	**5-10 Years**	**Urgent**

Initial Vital Signs

T 97.8 (O), P 95, R 24, BP 112/68, O2 Sat 97%, Wt 54 kg (118 lbs).

General Information

The informant is the patient and EMS. The patient is to be seen by the emergency department physician.

Chief Complaint

The patient's complaint is falling.
The patient's second complaint is injury, left wrist.
The patient's third complaint is hematuria.
The patient's fourth complaint is abrasion, right knee.

Allergies

Demerol, sulfa.

Medications

Current medications: None.

Past Medical History

Patient's physician: None. Her last tetanus shot was between 5-10 years ago. Tetanus is not up to date. Past medical history includes: anemia, back injury and pneumonia. The date of the last normal period was 01/12/96.

Past Surgical History

Past surgical history includes: appendectomy and C-section.

Nursing Triage Assessment

Assessment recorded by William L. Phillips, RN
The patient arrived for triage at 03/28/96 11:18.
The patient is assessed in triage as urgent.
She is a 37 year old caucasian pregnant female. The calculated EDC is 10/18/96 based on the patient's stated LMP. The calculated gestation is 11 weeks. Mrs. Garbo has a height of 5' 3" and weighs 54 kg. (118 lbs.) (weighed) Onset of the problem occurred at approximately 10:53 on 03/28/96. Treatment prior to arrival included sling, wound dressing.

Patient states that she was crossing the street and tripped on the curb. She fell onto her outstretched left hand and injured the left wrist and abraded her right knee. However she went home and on going to the bathroom she noted bloody urine in the toilet. She is not on her period. She missed her last period and wonders if she might be pregnant. The patient is awake, alert, attentive, moving all extremities well. The patient indicates a normal appetite. Skin W/D, pink nail beds, less than 2 second capillary refill. No obvious deformity. No respiratory distress. No neurovascular deficit to the injured area. No nausea, vomiting or diarrhea.

William L. Phillips, RN

Triage Record

Southwest General Hospital
San Antonio, Texas
Emergency Department

03/28/96
12:13

Report of Treatment

Garbo, Greta G

Employed By

Admission Number	6478636
Treated by	James Ross, Jr., MD
Date of Injury	03/28/96
Date of Treatment	03/28/96
Time of Treatment	11:18

Status

Services performed included: initial treatment, radiology, lab work, physical exam, splint application.
The patient may return to modified work on 04/02/96.
The patient should not do any prolonged standing or walking. The patient should participate in right handed work only. The patient should not work near moving machinery. The patient should limit lifting to no more than 10 lbs

Referrals

Bebe T Newbirth
OB-GYN
Babies "R" Us
1654 Lullabye Lane
Suite #344
San Antonio, TX 78202
(210) 555-1222

Frank Garcia
Orthopedics
Ortho S.M.A.R.T.
7355 Barlite Blvd. #201

San Antonio, TX. 78224
222-2212

If you are unable to get a prompt appointment with the referral physician, call the Emergency Department for an alternate referral. If you h any questions contact the Emergency Department.

Authorization is hereby granted to release the above information to my employer.
I also agree to and understand the recommended follow-up instructions.

Patient Signature
Employer Copy

Signature – James Ross, Jr., MD

Southwest General Hospital

San Antonio, Texas

Emergency Department

03/28/96
12:14

Patient Instructions

Admission # **6478636** Patient # **788231** Room/Bed **Unknown**

Patient **Garbo, Greta G**

You were Seen by **Dr. James Ross, Jr., MD**

The following instructions are important for your continued care.

ANTIBIOTIC THERAPY

You have been given an antibiotic prescription. It's important that you take all the medication, unless instructed otherwise by your physician. Failure to complete the entire course can result in relapse of your condition.

Common side effects of antibiotics include nausea, intestinal cramping, or diarrhea. Women may develop vaginal yeast infections, and babies can get yeast (thrush) in the mouth following the use of antibiotics. Contact your physician if you develop significant side effects from this medication.

Allergy to this antibiotic can result in hives, wheezing, faintness, or itching. If symptoms of allergy occur, stop the medication and call the doctor.

FRACTURED RADIUS

The bone called the radius is fractured. This type of fracture is typically caused by falling onto the outstretched hand. The fracture is not serious, however, and should heal well shows the bone is in good position to heal.

A cast or splint is used to protect the fracture. For the first few days after the injury, the arm should be elevated and ice packed. Healing takes from three to eight weeks, depending on the age of the patient and the seriousness of the fracture.

Your doctor has explained the treatment plan. It's important that you follow up as instructed to prevent complications. Call the doctor or return at once if severe pain or swelling occur, or if the hand becomes numb, swollen, or discolored.

SLING TO BE USED

You are to use a sling. This is to rest the area, and to prevent it from hanging downward. Use this sling for at least 48 hours (or longer if so instructed by the doctor). Some types of splints will break if not supported by the sling, so the sling must be used as long as the splint.

Ice can be placed inside the sling over the injured area.

Once you remove the sling, you should not encounter pain when you use the arm and hand. If you do feel pain beneath the cast or splint, you must continue use of the sling.

SPLINT PENDING CASTING

Your injury can't be casted until the swelling has subsided. Therefore a temporary splint has been placed to protect the injury.

Full use of an injured area is not possible in a splint. You should follow the doctor's instructions concerning rest, ice, and elevation of the injury. Never do anything which causes pain under the splint.

Keep the splint on ALL THE TIME until you return for casting. If there is unexpected severe pain, or numbness, discoloration, or swelling beyond the splint, you should return at once.

URINARY TRACT INFECTION

Your evaluation indicates that you have a urinary tract infection. This is due to germs growing in the bladder. This is a common problem.

This infection usually responds quickly to antibiotics. Your antibiotic should be taken exactly as prescribed. Drink plenty of fluids — 3 to 4 quarts a day.

Occasionally a bladder anesthetic will be prescribed to help stop the feeling of urgency until the antibiotic has a chance to clear the infection. This may cause your urine to be dark orange.

Certain urine infections require a culture. If the doctor obtained a culture, the results will be back in two days. You should call to see if a change in treatment is needed.

Hospital Copy *Received By* _____

Southwest General Hospital

San Antonio, Texas

Emergency Department

03/28/96
12:14

Patient Instructions

Admission # **6478636** Patient # **788231** Room/Bed **Unknown**

Patient **Garbo, Greta G**

You were Seen by **Dr. James Ross, Jr., MD**

The following instructions are important for your continued care.

A repeat urinalysis after you finish treatment is often recommended. The physician will let you know if further testing is required.

Call the doctor if you develop fever, chills, flank pain, inability to urinate, or blood in the urine.

YOU WERE GIVEN A PRESCRIPTION FOR:
TYLENOL #3 Tab 300-30MG
MACROBID CAP100MG

YOU ARE REFERRED TO:
Doctor Bebe T Newbirth
Specializing in OB-GYN
Office Telephone Number: (210) 555-1222
Babies "R" Us
1654 Lullabye Lane
Suite #344
San Antonio, TX 78202
Call for an appointment on 03/29/96.

YOU ARE REFERRED TO:
Doctor Frank Garcia
Specializing in Orthopedics
Office Telephone Number: 222-2212
Ortho S.M.A.R.T.
7355 Barlite Blvd. #201
San Antonio, TX. 78224
Call for an appointment on 04/02/96.

THANKS!
Thank you for choosing us for your medical needs. We hope you're satisfied with the care you received. If there was a problem, please call so we can "make things right."

Call at any time if you have questions concerning the treatment of your problem.

You should return at once if there is a significant worsening of your condition, or if any new symptoms arise.

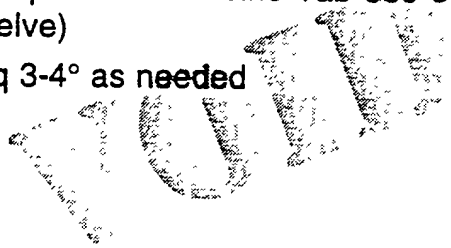
If a follow-up examination was recommended for you, it's important that you be re-checked. If you encounter difficulty with your follow-up care, please call.

Hospital Copy *Received By* _____

Southwest General Hospital
7400 Barlite Blvd. • San Antonio, Texas 78224 • 210/921-3430
Physician Phone

Patient **Greta G Garbo**
Address

Rx TYLENOL #3 TAB 300-30MG
(Acetaminophen w/ Codeine Tab 300-30 MG)
12 (Twelve)
1 tab po q 3-4° as needed



Selection Permitted _____ Dispense As Written _____

Date 03/28/96 Dr. James Ross, Jr., MD

Refills None DEA AR1358212 State # H6940

Patient **Greta G Garbo**
Doctor James Ross, Jr., MD
Prescription for **TYLENOL #3 TAB 300-30MG**

GENERIC NAME: ACETAMINOPHEN (a-seat-a-MIN-oh-fen) and CODEINE (KOE-deen)

COMMON USES: This medicine is used to relieve pain.

HOW TO USE THIS MEDICINE: Follow the directions for using this medicine provided by your doctor. THIS MEDICINE MAY BE TAKEN WITH FOOD if it upsets your stomach. IF YOU MISS A DOSE OF THIS MEDICINE and you are using it regularly, take it as soon as possible. If it is almost time for your next dose, skip the missed dose and go back to your regular dosing schedule. Do not take 2 doses at once.

CAUTIONS: DO NOT EXCEED THE RECOMMENDED DOSE or take this medicine for longer than prescribed without checking with your doctor. Exceeding the recommended dose or taking this medicine for longer than prescribed may be habit-forming. THIS MEDICINE MAY CAUSE drowsiness or dizziness. Using this medicine alone, with other medicines, or with alcohol may lessen your ability to drive or to perform other potentially dangerous tasks. Ask your doctor or pharmacist if you have questions about which medicines cause drowsiness. BEFORE YOU BEGIN TAKING ANY NEW MEDICINE either prescription or over-the-counter, check with your doctor or pharmacist. This includes medicines which contain acetaminophen or antihistamines.

POSSIBLE SIDE EFFECTS: SIDE EFFECTS, that may go away during treatment, include dizziness, drowsiness, lightheadedness, constipation, nausea, or vomiting. If they continue or are bothersome, check with your doctor. CHECK WITH YOUR DOCTOR AS SOON AS POSSIBLE if you experience rash or itching. If you notice other effects not listed above, contact your doctor, nurse, or pharmacist.

While the invention has been described with reference to specific embodiments, modifications and variations of the invention may be constructed without departing from the scope of the invention, which is defined in the following claims.

We claim:

1. A medical records, documentation, tracking and order entry system, comprising single or multiple fault tolerant file servers with single or multiple fault tolerant backup servers, with each server having either standard hard drives or redundant array of independent drives, a communications server(s) linked to each of the file servers for receiving incoming transcription and for remote reception of software, maintenance and system updates from a software vendor, a network having a hub connected to the file servers, peripheral terminals connected to the network in a star configuration with the hub, the peripheral terminals having individual central processing units with hard disks, touch screens, monitor, keyboards and mouses connected to the CPU's, software residing in the communication server(s), in the file servers, and in the peripheral CPU's for receiving patient data in the peripheral CPU's via the touch screens, mouses, and keyboards and for storing the patient data in the peripheral CPU's and the file servers; and a distributed dictation system having inputs adjacent the CPU's, a transcription system for receiving dictation from the inputs and connected to the communication server(s) for transmitting transcribed dictations to the communications server(s) and placing the transcribed dictations in an electronic storage bin for transferring the dictated transcriptions to the file servers, storing the dictated transcriptions in the file servers as text associated with the patient data for particular patients, printers connected to the

network for printing reports on individual patients and system management reports of system operations, doctor related activities, nursing related activities and patient statistics.

2. A method of patient record documentation, tracking and order entry, comprising providing software in file servers, providing software from the file servers through a network hub and network to multiple CPU's, entering patient data in the multiple CPU's by touch screens, mouses and keyboards in response to data entry screens on monitors connected to the CPU's, transferring the patient data from the CPU's to the file servers, dictating portions of the record that are unique to particular patients, transmitting the dictation over lines to a transcription center, transcribing the dictation and transmitting the dictation transcriptions to a communication server(s), feeding the dictation transcriptions to the file servers as text, storing the text with the tabled data on particular patients in the file servers, storing word and sentence generation and coordination software in the peripheral CPU's, displaying on the peripheral CPU monitors text sentences in medical English text generated from patient data by the generation software, ~~as~~ and combined with the text from the dictation transcriptions assembled as summaries, and providing the text summaries from the peripheral CPU's to printers via the network for generation of printed patient textual reports.

3. The method of claim 2, further comprising installing utility software in the peripheral CPU's and generating

management reports in the peripheral CPU's by calling data over the network from the file servers and compiling the data as text and directing the compiled data to the printer.

4. The method of claim 2, further comprising producing nurses' notes by entering data on touch screens, mouses and keyboards, transferring the data of nurses' notes from the peripheral CPU's to the file servers, storing the nurses' notes data in the file servers, transmitting the nurses' notes data to the peripheral CPU's, recompiling the data into nurses' notes text in the CPU's, displaying the nurses' notes as text on the peripheral CPU monitor screens, and printing the nurses' notes text on the printer.

5. The method of claim 2, further comprising storing prephrased text examples in the peripheral CPU's, and preliminarily inputting prephrased personalized text by individual physicians and nurses, and compiling the selected text with data for producing medical English text summaries and reports.

6. The method of claim 2, further comprising storing text in the CPU's, generating nurses' orders by entering physician orders to nurses with touch screens, mouses and keyboards at peripheral CPU's, transmitting the physician orders as physician orders data to the file servers, storing physician orders data with the patient tabled data in the file servers, providing the physician orders data with the patient data from the file servers to the peripheral CPU's, compiling the physicians' orders data,

patient data and stored text, and displaying the physician orders data as textual nurses' orders on the displays, displaying all outstanding nurses' orders on the displays on request, displaying all nurses' orders specific to a patient on the patient display, entering executions of the nurses' orders on the patient display and automatically changing the executed nurses' orders to nurses' textual notes for display and printing in summaries.

7. The method of patient record documentation, tracking and order entry, comprising logging on to a peripheral CPU, displaying the user's name and the active patient list "grease board", and showing room location, patient's name, patient's physician, nursing orders, patient priority and elapsed time of stay, and status of assignment of nurse and physician, ordering of X-rays, labs, tests, nurses' orders, records, dictation and vital signs.

8. The method of claim 7, wherein the status is shown in small letters for ordering of X-rays, labs, tests, nurses' orders and dictation, and large letters for completion of X-rays, labs, tests, nurses' orders and transcription of dictation.

9. The method of claim 7, further comprising alternately displaying active patient list information in department layout.

10. The method of claim 7, further comprising alternately displaying the list of patients waiting to be seen by a physician, in order of priority.

11. The method of claim 7, further comprising alternately displaying patient lists by patient complaints.

12. The method of claim 7, further comprising alternately displaying patient lists by patients whose reports have not been dictated by the physician.

13. The method of claim 7, wherein the logging on comprises inserting a security card in a receiver connected to the peripheral CPU, which logs on and identifies the user and brings up the active patient list.

14. The method of claim 13, wherein pulling the card from the receiver automatically exits the screen, establishes a security lockout on the terminal, and saves the data which has been entered on the screen by transferring the data from the peripheral CPU to file servers connected to the CPU.

15. The method of patient record documentation tracking and order entry, comprising entering patient data in one of plural peripheral CPU's by touching a touch screen or by moving and clicking a mouse, entering specific patient complaints by touch screen or mouse, and automatically generating potential differential diagnosis from a specific patient complaint according to sex and age in the patient data.

16. The method of claim 15, further comprising displaying the differential diagnosis in two levels, a first level and a second level, the first level having all potential diagnoses associated with the specific complaint, the second level having a relatively short list of most common and most serious potential diagnoses which are specific to the complaint, both first and second levels being age and sex specific.

17. The method of claim 15, further comprising entering patient treatment data by touch screen and mouse at the peripheral CPU, transferring the patient treatment data from the CPU to file servers, providing patient instruction sets in the peripheral CPU's, automatic selection of patient instructions by the software according to the treatment data, the diagnosis data and the complaint data, and transferring selected patient instructions from the peripheral CPU to a printer for printing patient instructions and a patient record.

18. The method of claim 17, further comprising storing in the peripheral CPU's alphabetical listings of all drugs and drugs commonly prescribed by a physician, and displaying the commonly prescribed drugs in response to a touch screen or mouse request for a drug display by the physician, selecting the desired drugs from the display of commonly used drugs by the touch screen or mouse, from an alphabetical listing, drug category listing, or from a doctor-specific personal preference listing; preselecting a drug, number, route and dosage from the listing, displaying the prescriptions on a display in response to a request for the prescription display by the physician, generating nursing medication orders in the patient records, in the outstanding order list, generating prescription, transmitting the prescription data to the file servers for inclusion in the medical records and in the patient instruction, and transferring the prescription data to the printer for printing a prescription and associated patient instructions.

19. The method of claim 17, further comprising storing advance cardiac life support (ACLS) documentation software in the peripheral CPU's, displaying ACLS screens on peripheral CPU monitors, checking specific treatments on the monitor by touch screen, mouse or keyboard, and entering specific treatments data by checking or touching a procedure performed button, medication given button or rhythm documented button, transferring the data to the file server, including the procedure, medication or rhythm and the time of the procedure, medication or rhythm, calculating the elapsed time since the procedure, medication or rhythm was input at the peripheral CPU.

20. The method of claim 19, further comprising providing on the monitor ACLS medication screens, ACLS procedure screens and ACLS rhythm screens which are exchangeable back and forth on the monitor, all of the medication screens, procedure screens and rhythm screens having "given/performed" buttons for entering the time and procedure, medication, or rhythm in the ACLS history and "history of ACLS" buttons for displaying the ACLS history, with means in the peripheral CPU for displaying elapsed time since each entry of medication, procedure and rhythm was logged.

21. The method of claim 19, further comprising entering ACLS history in the patient medical record, which is compiled in medical English text by the peripheral CPU and transmitted to the printer for printing of the complete patient record with the ACLS procedures, and additionally with all ACLS data sent from the peripheral CPU to the file servers.

22. The method of claim 15, further comprising providing documentation of laceration repair by displaying laceration screens which document all laceration repair materials and procedures applied to each of multiple layers of tissue and multiple wounds on a patient.

23. The method of video instruction on demand, comprising storing prepared video patient instructions in a file server, preselecting the video instructions according to complaint, sex, age, prescriptions and procedures, selecting video instructions from preselected video instructions and displaying the selected instructions, whereby video patient instructions can be provided on the screen of any terminal CPU to instruct patients in the proper care of and information about medical conditions.

24. The method of claim 23, further comprising providing video instruction on demand whereby video patient instructions can be provided to assist in obtaining informed consent for performing medical procedures.

25. The method of medical language generation from data, comprising storing sentences and phrases related to medical data in peripheral CPU's, inputting patient data, transferring patient data to file servers and tabling patient data, transferring the tabled patient data to the CPU's and compiling sentences and paragraphs in the CPU's from the stored sentences and phrases and the patient data, whereby stored medical facts are converted into sentence structure.

26. The method of claim 25, further comprising the rearrangement of medical facts in sentence structure into a medically appropriate order.

27. The method of claim 26, further comprising the automatic consolidation of automatically generated medical English text with patient-related stored text (such as dictated transcripts).

28. The method of claim 27, further comprises automatic insertion of headlines and sub headlines where appropriate.

29. The method of claim 27, further comprises the automatic use of bold, italic, and larger text sizes to emphasize important medical sections or information.

30. The method of claim 15, further comprising providing automatic backup of data without requiring users to stop using the system while such backup is taking place.

31. The method of claim 30, further comprises the automatic interim backup of only data that has changed since the last backup without requiring users to stop using the system while such backup is taking place.

32. The method of claim 15, further comprising automatically recording each time the physician visits the patient's room.

33. The method of claim 15, whereby a user can, from any terminal, local or remote, with the proper security authorizations, initiate a teleconferencing link and allow for both video and audio communications between the linked users.

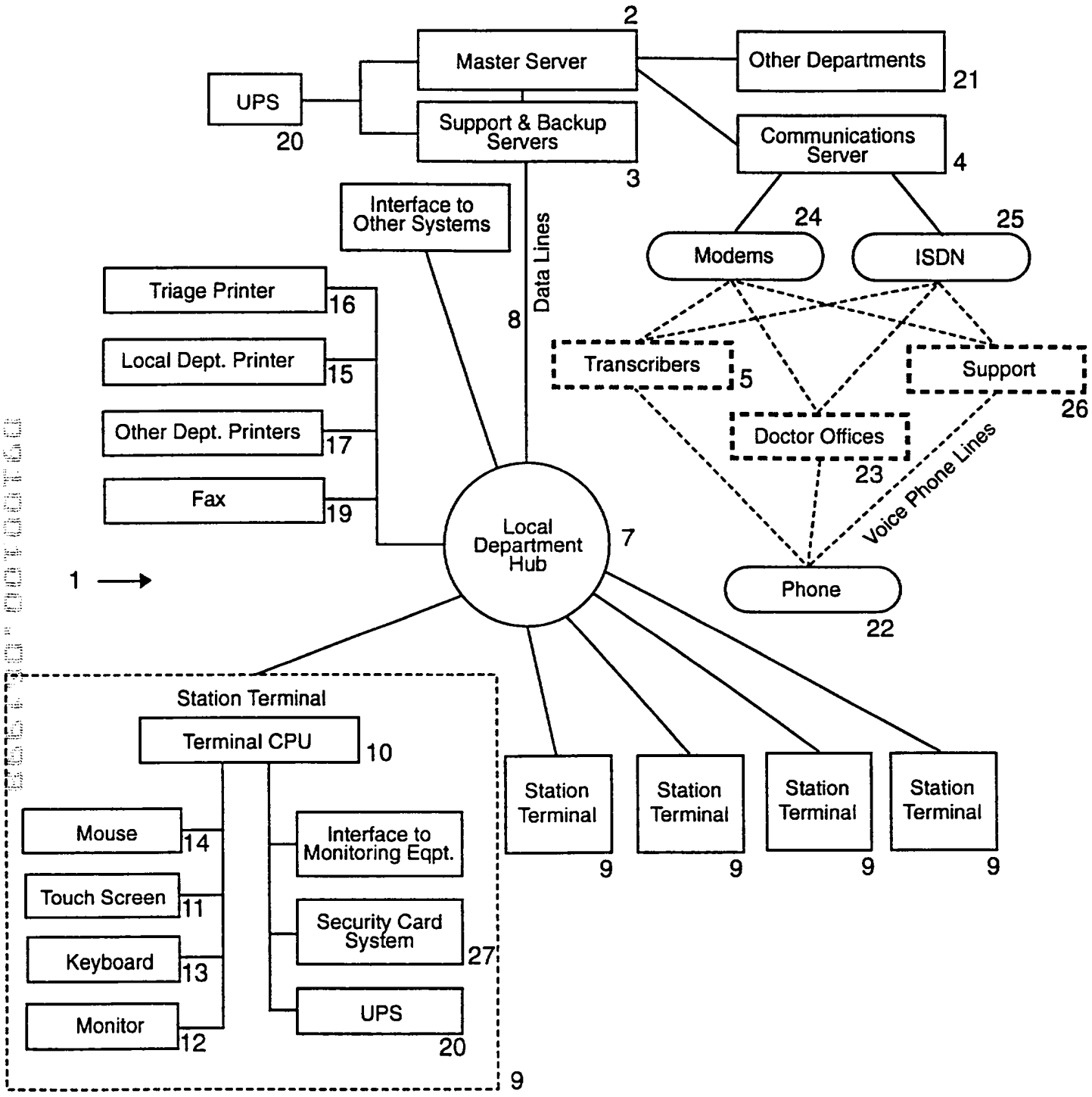
34. The method of claim 15, whereby research data can be automatically extracted from medical data with identifying patient demographics removed to provide for the extensive research of historical medical data.

35. The method of claim 15, whereby electronic signatures can be attached to medical documents and automatically printed with such documents.

36. The method of claim 35, further comprises the security procedures used to insure that electronic signatures are only placed by an authorized user.

ABSTRACT OF THE DISCLOSURE

The new system provides: automatic incorporation of dictated text; medical records summary generation in medical English text; parsing dictation to data; prephrased text; automatic generation of medical record as consequence of data entry; automatic notation of allergies, significant medical conditions and pregnancy; pregnancy linking, automatically; security card – close on pull; multi-look grease board; outstanding orders listing for all patients in the department; department layout; room selection excludes occupied rooms; nurses notes to text; nurses notes from physician orders to nurses; lab request screen shows all previously ordered labs; therapeutics; ACLS recording; lacerations; doctor specific prescriptions and medication orders; review of systems; coding level alerts ; differential diagnosis – filter to sex and age; diagnosis – fractures to text; doctor interval reexamination; patient instructions predicated on what was done; patient instruction video on demand; patient informed consent video on demand; video teleconferencing; electronic signatures; automatic backup and incremental backup with system on-line; critical management reports; and automatic research data extraction.


2
Master Server
Other Departments
21
UPS
20
Support & Backup Servers
3
Communications Server
4
Interface to Other Systems
24
25
Modems
ISDN
Data Lines
8
Triage Printer
16
Local Dept. Printer
15
Other Dept. Printers
17
Fax
19
Transcribers
5
Support
26
Doctor Offices
23
Voice Phone Lines
Local Department Hub
7
1
Phone
22
Station Terminal
Terminal CPU
10
Mouse
14
Touch Screen
11
Keyboard
13
Monitor
12
Interface to Monitoring Eqpt.
Security Card System
27
UPS
20
9
Station Terminal
9
Station Terminal
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Station Terminal
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Station Terminal
9

Figure 1

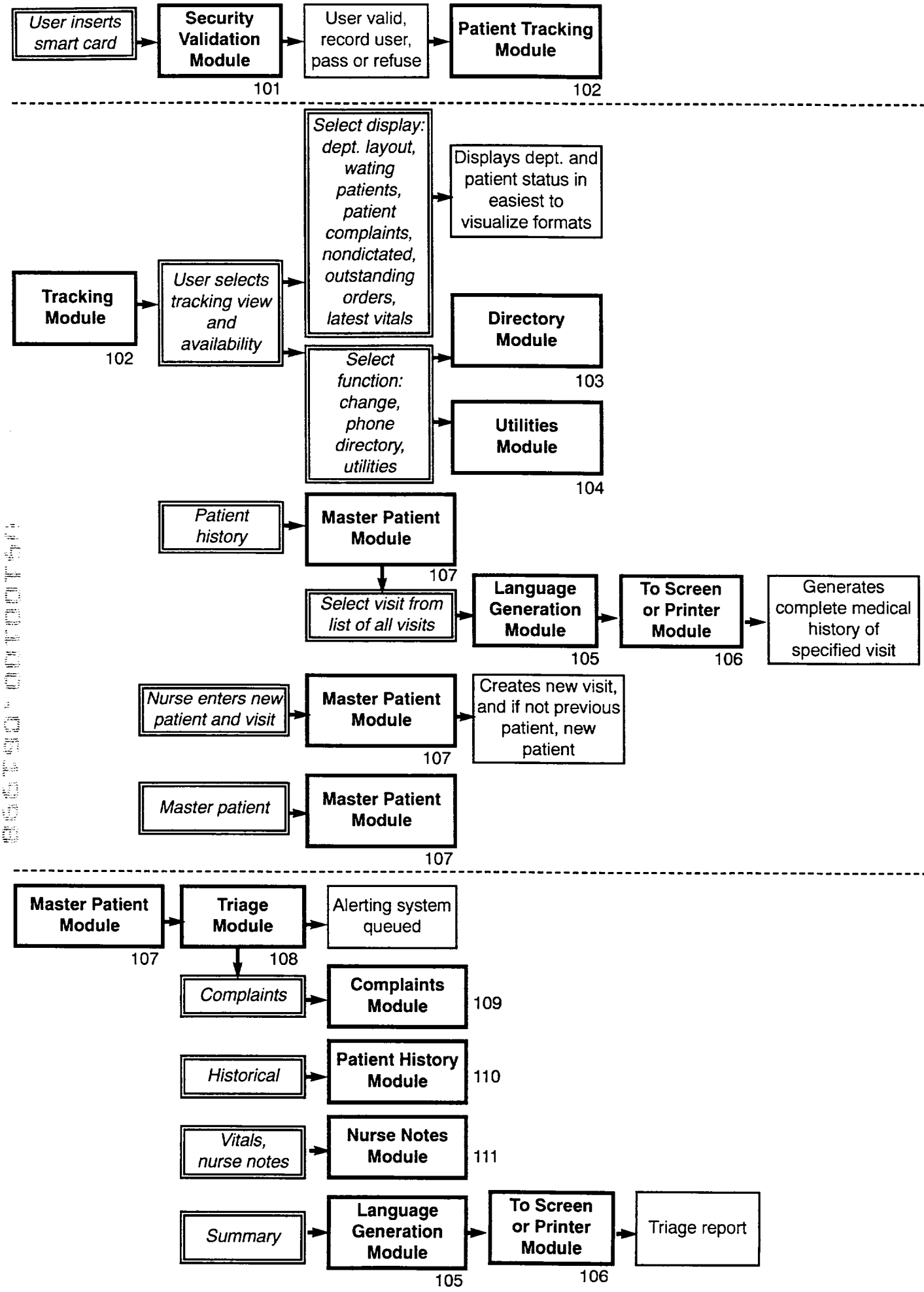

Figure 2: Functional Linking

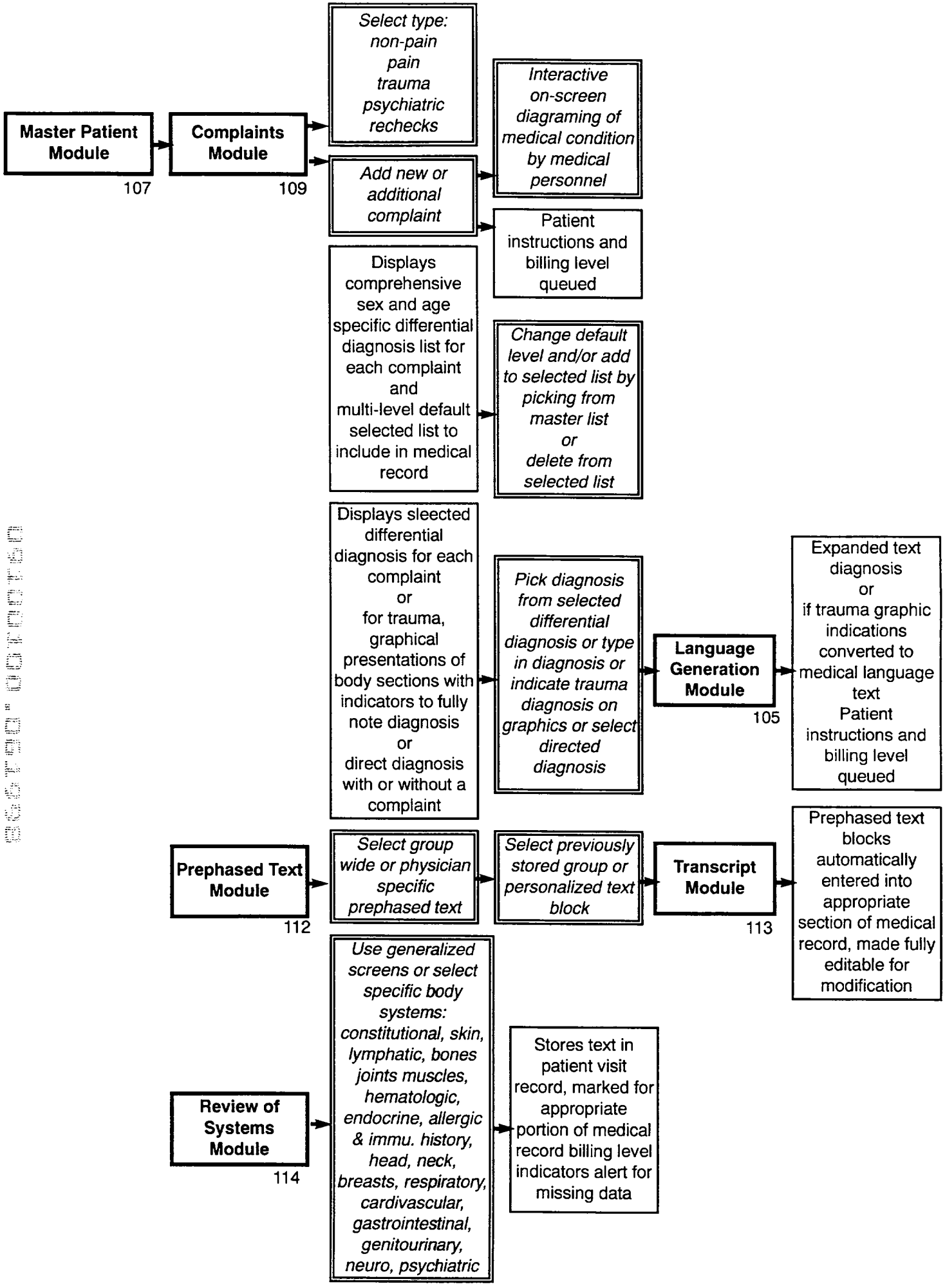

Figure 3: Functional Linking

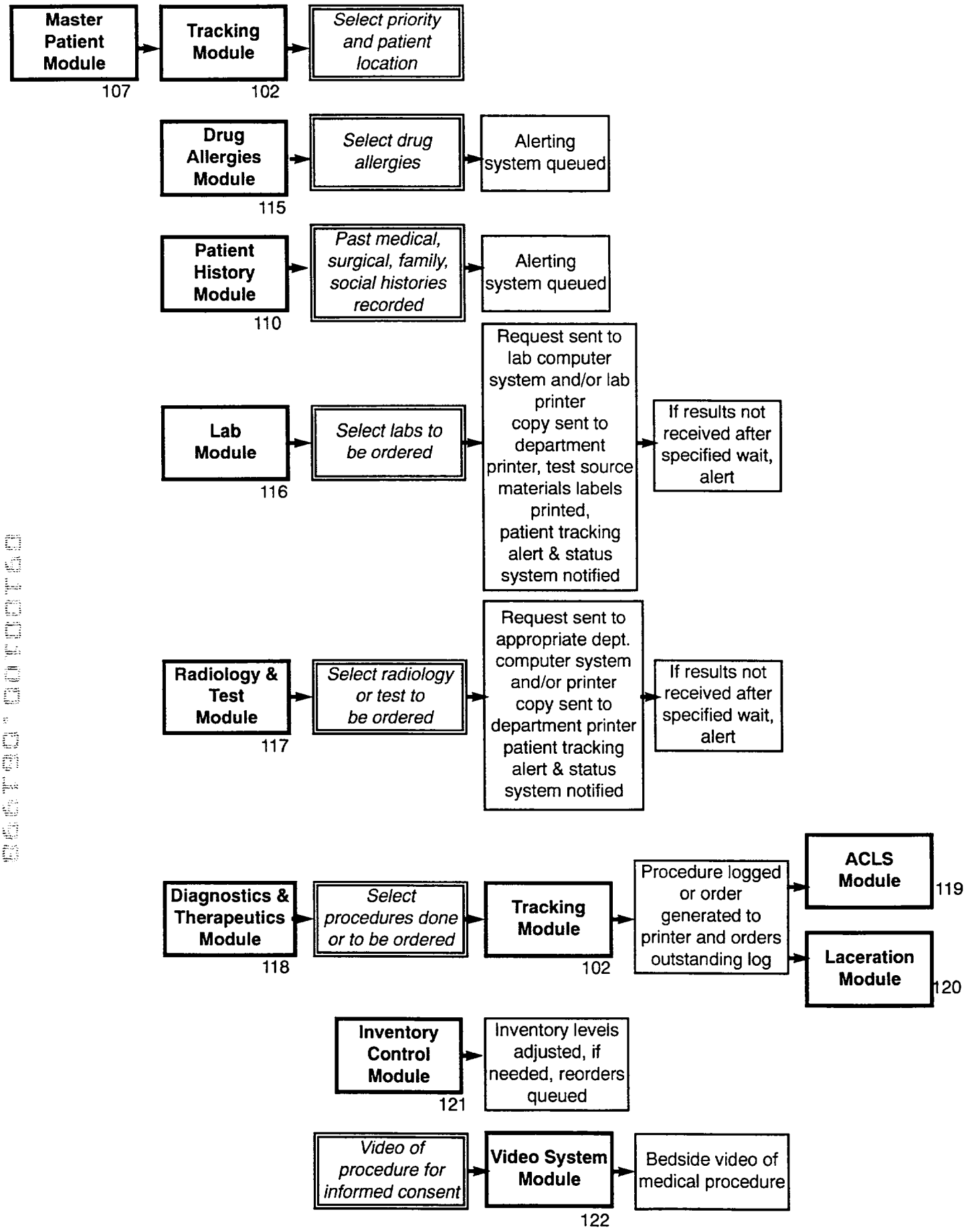

Figure 4: Functional Linking

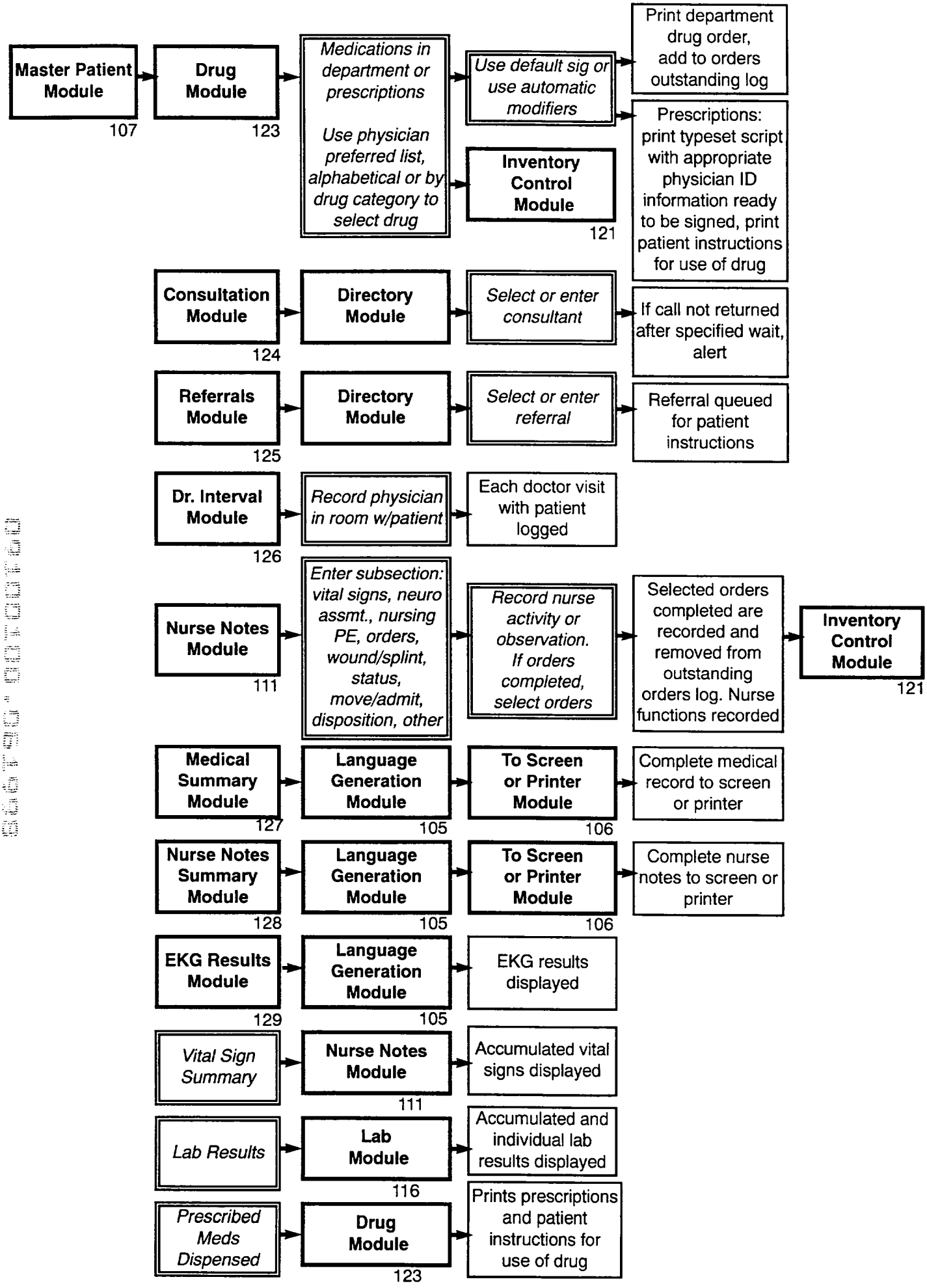

Figure 5: Functional Linking

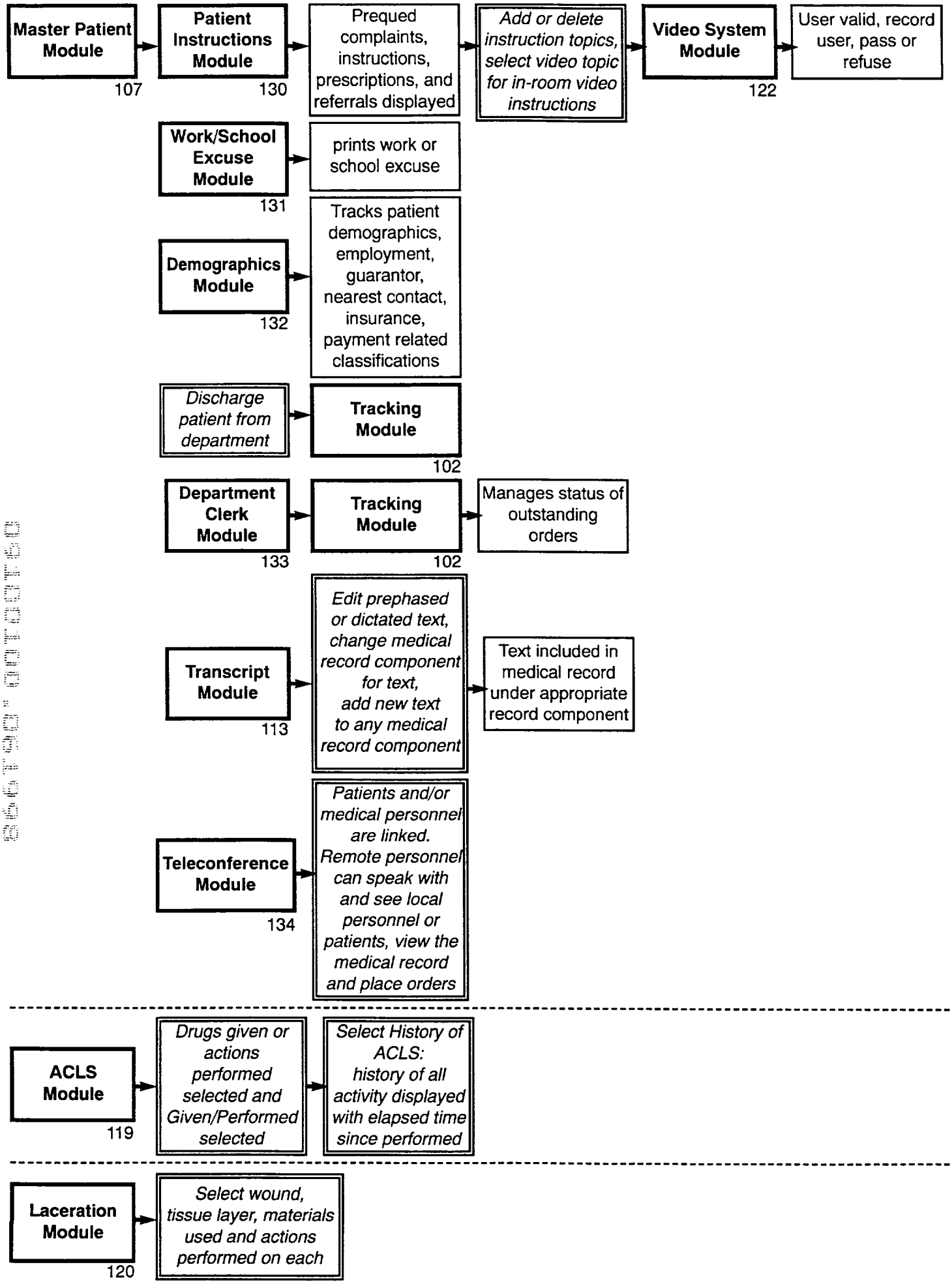

Figure 6: Functional Linking

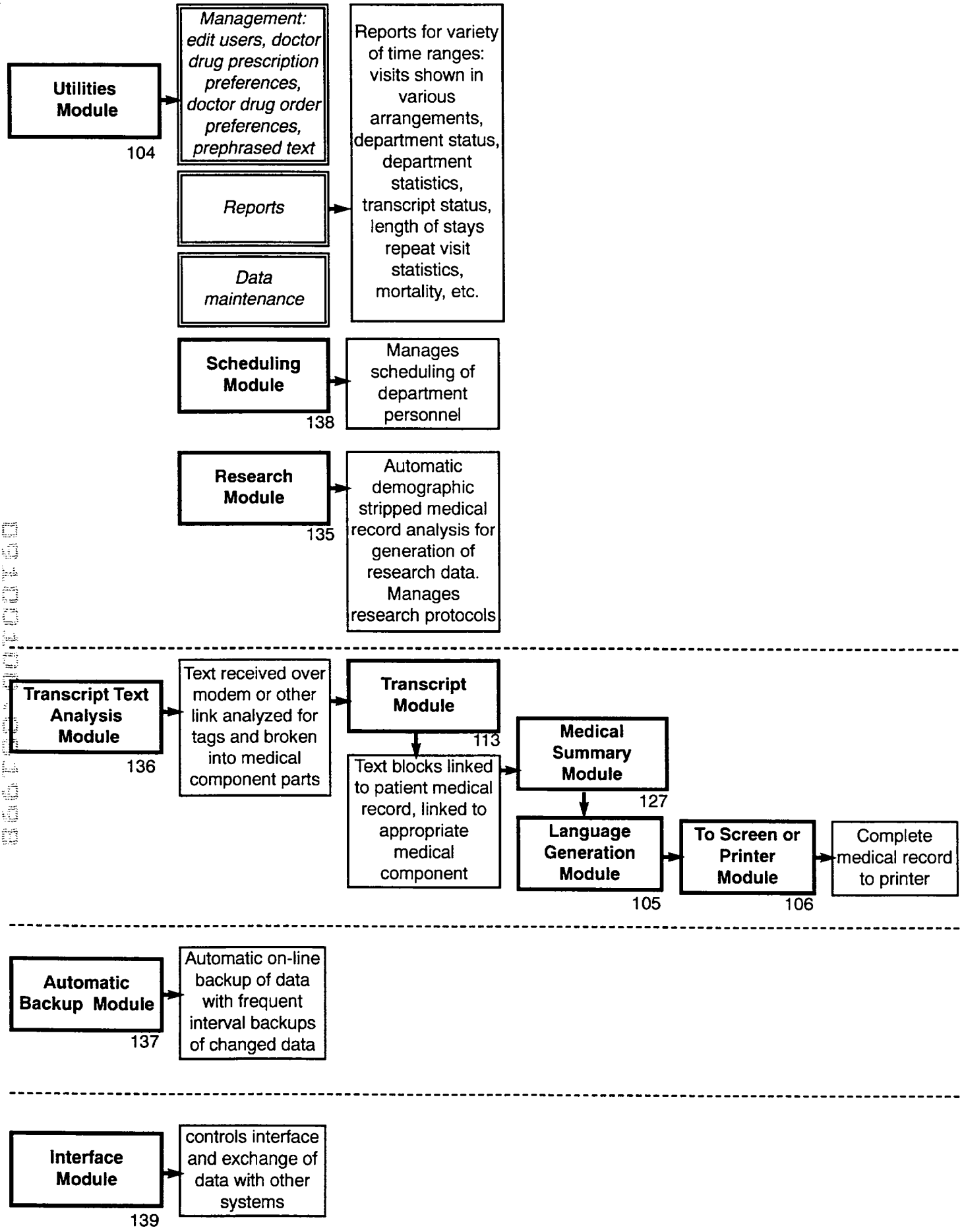

Figure 7: Functional Linking

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DECLARATION

[X] Declaration Submitted with Initial Filing OR [ ] Declaration Submitted after Initial Filing

Attorney Docket Number	RLIS
First Named Inventor	Ross
COMPLETE IF KNOWN	
Application Number	
Filing Date	
Group Art Unit	
Examiner Name	

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Medical Records, Documentation, Tracking and Order Entry System

the specification of which *(Title of the Invention)*

[X] is attached hereto

OR

[ ] was filed on (MM/DD/YYYY) [ ] as United States Application Number or PCT International Application Number [ ] and was amended on (MM/DD/YYYY) [ ] (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37 Code of Federal Regulations, § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code §119 (a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate, or §365 (a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Copy Attached? YES	Copy Attached? NO
			[ ]	[ ]	[ ]
			[ ]	[ ]	[ ]
			[ ]	[ ]	[ ]
			[ ]	[ ]	[ ]

[ ] Additional foreign application numbers are listed on a supplemental priority sheet attached hereto:

I hereby claim the benefit under Title 35, United States Code § 119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)	
		[ ] Additional provisional application numbers are listed on a supplemental priority sheet attached hereto.

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DECLARATION

I hereby claim the benefit under Title 35, United States Code § 120 of any United States application(s), or§ 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application

U.S. Parent Application Number	PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number *(if applicable)*

☐ Additional U.S. or PCT international application numbers are listed on a supplemental priority sheet attached hereto.

As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

Firm Name: James C. Wray — Payor Number (if applicable):

Name	Registration Number	Name	Registration Number
James C. Wray	22,693		
Paul J. Riley	38,596		
Meera P. Narasimhan	P 40,252		

☐ Additional attorney(s) and/or agent(s) named on a supplemental sheet attached hereto.

☒ Please direct all correspondence to: Name: James C. Wray

Address: 1493 Chain Bridge Road

Address: Suite 300

City: McLean | State: VA | ZIP: 22101

Country: U.S.A. | Telephone: (703) 442-4800 | Fax: (703) 448-7397

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon

Name of Sole or First Inventor: ☐ A petition has been filed for this unsigned inventor

Given Name	Middle Initial	Family Name	Suffix
James	E.	Ross	Jr.

Inventor's Signature: ✓ James E. Ross Jr. Date: 7/5/96

RESIDENCE: City: San Antonio | State: TX | Country: U.S.A. | Citizenship: U.S.A.

POST OFFICE ADDRESS: 16 Ancient Bend

City: San Antonio | State: TX | Zip: 78248 | Country: U.S.A. | Applicant Authority:

☒ Additional inventors are being named on supplemental sheet(s) attached hereto

Type a plus sign (+) inside this x —> +

DECLARATION

ADDITIONAL INVENTOR(S)
Supplemental Sheet

Name of Additional Joint Inventor, if any: ☐ A petition has been filed for this unsigned inventor

Given Name	William	Middle Initial	J.	Family Name	Lynch	Suffix	
Inventor's Signature	✓ [signature]				Date	✓ 7/5/96	
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POST OFFICE ADDRESS	7667 Callaghan Road						
City	San Antonio	State	TX	Zip	78229	Country	U.S.A.
Applicant Authority							

Name of Additional Joint Inventor, if any: ☐ A petition has been filed for this unsigned inventor

Given Name		Middle Initial		Family Name		Suffix	
Inventor's Signature					Date		
RESIDENCE: City		State		Country		Citizenship	
POST OFFICE ADDRESS							
City		State		Zip		Country	
Applicant Authority							

Name of Additional Joint Inventor, if any: ☐ A petition has been filed for this unsigned inventor

Given Name		Middle Initial		Family Name		Suffix	
Inventor's Signature					Date		
RESIDENCE: City		State		Country		Citizenship	
POST OFFICE ADDRESS							
City		State		Zip		Country	
Applicant Authority							

Name of Additional Joint Inventor, if any: ☐ A petition has been filed for this unsigned inventor

Given Name		Middle Initial		Family Name		Suffix	
Inventor's Signature					Date		
RESIDENCE: City		State		Country		Citizenship	
POST OFFICE ADDRESS							
City		State		Zip		Country	
Applicant Authority							

☐ Additional inventors are being named on supplemental sheet(s) attached hereto

VERIFIED STATEMENT CLAIMING SMALL ENTITY STATUS (37 CFR 1.9(f) & 1.27(c SMALL BUSINESS CONCERN

Docket Number (Optional)
RLIS

Applicant or Patentee: James E. Ross, Jr. and William J. Lynch
Serial or Patent No.: _____
Filed or Issued: _____
Title: Medical Records, Documentation, Tracking and Order Entry System

I hereby declare that I am
☐ the owner of the small business concern identified below:
☒ an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF SMALL BUSINESS CONCERN RLIS, Inc.
ADDRESS OF SMALL BUSINESS CONCERN 4319 Medical Drive, #131-341
San Antonio, TX 78229

I hereby declare that the above identified small business concern qualifies as a small business concern as defined in 13 CFR 121.12, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees to the United States Patent and Trademark Office, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention described in:

☒ the specification filed herewith with title as listed above.
☐ the application identified above.
☐ the patent identified above.

If the rights held by the above identified small business concern are not exclusive, each individual, concern or organization having rights in the invention must file separate verified statements averring to their status as small entities, and no rights to the invention are held by any person, other than the inventor, who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person made the invention, or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d), or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization having any rights in the invention is listed below:
☒ no such person, concern, or organization exists.
☐ each such person, concern or organization is listed below.

Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING James E. Ross, Jr.

TITLE OF PERSON IF OTHER THAN OWNER President

ADDRESS OF PERSON SIGNING 4319 Medical Drive, #131-341, San Antonio, TX 78229

SIGNATURE ✓ _____ DATE ✓ 7/5/96